REPORT ON THE 1990 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO

VOLUME I

SUMMARY OF COMPLIANCE ASSESSMENT

JULY 1992

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REPORT ON THE 1990 INDUSTRIAL DIRECT DISCHARGES IN ONTARIO

Volume I : Summary of Compliance Assessment

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in co-operation with
Regional Operations Division
Ontario Ministry of the Environment

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Abstract

The annual Industrial Direct Discharge Report is a comprehensive summary of industry's performance in controlling the quality of direct discharges into Ontario's waterways. The report details compliance with effluent requirements and graphically displays effluent loadings trends.

The report consists of two volumes. Volume I is a summary of compliance assessment and the report findings; Volume II contains individual discharger data and several referenced appendices. Appendix A in Volume II forms the bulk of the report and contains information on the name and location of the discharger, the characteristics of the waste effluent, a brief description of treatment equipment and systems, and the receiving water body. Also listed in Appendix A are: the control mechanisms for limiting discharge and the status of compliance with those limits a description of abatement activities, and any comments that may be relevant to describe the discharge or discharger.

Self-monitoring data provided by each industry includes monthly average flows, and monthly average loadings of the limited parameters. While conventional parameters continue to be the emphasis of this document, additional data are available in published MISA (Municipal Industrial Strategy for Abatement) documents. The report also includes the results of acute lethality testing using rainbow trout and Daphnia magna, gathered under MISA Regulations.

Compliance with site-specific requirements in 1990 improved marginally.

The loading trends in the report show that there was a steady reduction in total aggregate discharges of conventional pollutants over the years.

Information relating to industrial spills and municipal STP discharges are reported under separate cover. For questions relating to this report please contact: Senior Manager, MISA Office, Water Resources Branch, 1 St. Clair Ave. West, Toronto (416) 323-4915.

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EXECUTIVE SUMMARY

The annual Industrial Direct Discharge Report is a comprehensive summary of industry's performance in controlling effluent quality in Ontario for the year 1990. The report details compliance with effluent requirements and graphically displays effluent loadings trends. Compliance with site-specific requirements in 1990 improved marginally as did the reduction in total aggregate loadings.

In this report, an industrial direct discharger is designated as being out of compliance if its effluent concentration or discharge loadings exceed one or more of the parameters in the effluent requirements. If there is any exceedance, even minor, the discharger is deemed to be out of compliance.

The word "compliance" as used in this report does not indicate that no contraventions of the legislation and regulations have occurred, but rather that the data recorded in the report do not, in themselves, demonstrate that there have been contraventions. Dischargers may be in compliance with the data contained in this report, however they may be in violation of the Environmental Protection Act for causing other adverse effects to the environment, such as spills which may have bypassed the sample location. Information on spills are contained in the Spills Action Centre Summary Report, published annually under separate cover.

This report is not an assessment of impacts of industrial discharges on the environment. It is an assessment report on the performance of the dischargers against the limits/guidelines they are required to meet.

The report consists of two volumes. Volume I is a summary of compliance assessment while Volume II contains individual discharger data and several referenced appendices.

This report is based on self-monitoring data provided by industry; most of the data was provided to comply with the requirements of the Municipal Industrial Strategy for Abatement (MISA) monitoring regulations. While conventional effluent parameters continue to be the emphasis of this document, additional data on specific chemicals are available in published MISA documents.

Of the one hundred and sixty-seven (167) industries assessed in this year's report, seventy-seven (77) were in compliance for all measured effluents for the full year. Ninety (90) dischargers were not in compliance. In response, twenty-five (25) companies made physical changes to their treatment systems, while another thirty-seven (37) implemented best management operational procedures to achieve compliance. Nine (9) non-complying companies ceased

operations in 1991 for economic reasons, and the remaining nineteen (19) require further action to be in compliance.

Another general indicator of the effectiveness of abatement and enforcement programs over the years is a discharge loading trend. The loading trends in the report show that there continued to be a reduction in total aggregate discharges over the years.

This year's report includes the results of acute lethality testing using rainbow trout and Daphnia magna, gathered under the MISA Monitoring Regulations for the 208 MISA sites sampled (including the 167 direct discharging industries assessed in this report). In at least one effluent sample from 91 sites (44%), less than 50% of rainbow trout survived. In samples from 112 sites (54%), Daphnia tests in resulted less than 50% survival in at least one sample.

The Ministry also publishes under separate cover a report on performance information on municipal Sewage Treatment Plants.

1.0 INTRODUCTION

1.1 History of Discharge Reporting

This annual report summarizes the performance of industrial plants that discharge effluents directly into the surface waters of Ontario. The annual reports were started in 1978 to meet the requirements of Article VI 1(c) of the Great Lakes Water Quality Agreement between Canada and the United States, and they have evolved over time in response to changes in the Agreement, as well as demands from the public. Originally only annual averages were reported; now monthly averages are reported as well. The report now includes industrial direct dischargers in all of Ontario, not only those discharging into the Great Lakes. Compliance and loading trends are used as indicators of abatement progress.

Dischargers are required by the Ministry of the Environment to self monitor their effluent quality and report the results. Effluent quality is judged by comparing reported values against numerical limits. The numerical limits for the parameters may be either a guideline (provincial or federal) or legal requirement (control order, certificate of approval, requirement and direction, federal regulation).

1.2 How to Use this Report

Volume I contains a summary and an overview of the compliance performance of 167 direct dischargers for the year 1990. All effluent requirements must be met at all times throughout the year for a discharger to be in compliance. Table A lists the results of all the acute lethality tests on industrial effluents in 1990. Appendices A, B and C in Volume I summarize compliance, abatement and enforcement actions. The three year compliance performance for each discharger is summarized in Appendix A. Actions taken to address 1990 non-compliance are in Appendix B. Appendix C provides a list of actions taken by the Ministry in response to an occurrence report of a violation of a legal requirement.

Volume II contains appendices showing more detailed data. The actual monthly and annual average pollutant loadings and flows, as well as effluent requirements are shown for each source in Volume II, Appendix A. The wastewater discharge summary sheets are arranged in alphabetical order by company name. The summary for each discharge source identifies the owner of the plant site and its location, describes the nature of the plant operation and the associated effluent quality in terms of conventional pollutants and toxicity test results. Conventional pollutants are suspended solids, dissolved solids, biochemical oxygen demand, chemical oxygen demand, solvent extractables, phosphorus, ammonia-nitrogen, Kjeldahl nitrogen, nitrites and nitrates, nitrates, dissolved solids, and phenols. There may be other site-

specific parameters such as arsenic, cyanide, copper, lead, zinc, nickel, radium 226, iron, and temperature. Effluent treatment systems external to the plant are also described. In setting effluent requirements the ministry chooses control parameters that are typical indicator pollutants for that particular industrial operation. Any exceedances of the requirements are noted and an explanation is provided.

Both volumes of this report are available from the MOE Public Information Office, 135 St. Clair Avenue West, Toronto, Ontario, M4V 1P5, telephone (416) 323-4321 and Ministry field offices.

2.0 EFFLUENT REQUIREMENTS

2.1 Net and Gross Data Reporting

The wastewater discharge summaries in Volume II, Appendix A, show total site (plant) loadings as well as individual pipe discharges. Unless stated otherwise, the loadings reported are 'gross' values. In reports prior to 1989, pollutant loadings were identified as either gross or net values and the majority of the loadings were reported as gross. Where the effluent loading had been adjusted for pollutants in the intake water, the loading was a net value and this applied to about 10% of the dischargers.

Although in theory net loadings can be calculated, there are practical difficulties in quantifying the impact of intake contaminants on the final plant discharges. For example, considering the conventional parameter suspended solids, almost all plants remove intake solids – silt, clays and other debris – before using the fresh water. In addition, the solids discharged may be of a different nature than those originally present in the intake water as the result of use and/or treatment. These factors, and others, make calculations of final effluent quality in relation to intake water quality highly questionable.

For some dischargers, the conversion to reporting gross loadings may result in an apparent increase in the loading numbers compared to those reported in previous years. However, these reported increases do not necessarily mean that there was an actual increase in the effluent loadings being discharged, but rather a reported increase due to a change in the loading calculation. Where this change has occurred, the data reported for 1990 cannot be compared to that of previous years. The changes are shown on the discharge summary sheet. All companies monitored under the MISA program except one are reporting gross data.

2.2 Effluent Limits

The Ontario Ministry of the Environment presently sets effluent limits on a site-specific basis. A variety of measures are used by the province to apply

these limits, including voluntary programs or guidelines, control orders, certificates of approval and other MOE requirements and directions. The MISA limits regulations will set legally enforceable limits for each of the discharges in nine industrial sectors.

The implementation of pollution control is a cooperative federal/provincial endeavour. Ontario has agreed, under the Canada-Ontario Accord for the Protection and Enhancement of Environmental Quality, to adopt provincial pollution control requirements which are at least as stringent as the national objectives. Federal guidelines apply to some existing plants, while federal regulations prescribe limits for new and expanded plants. The federal regulation for chlor-alkali plants is the only regulation that applies to both existing and new facilities. Few federal regulations apply to Ontario plants. Refer to Volume II, Appendix F for a list of federal regulations and guidelines.

2.3 Legal Requirements

Legally enforceable control orders under Section 6 of The Environmental Protection Act, which define abatement actions with compliance dates, may be issued to any existing plant. Legally enforceable requirements and directions may also be issued under Section 51 of The Ontario Water Resources Act. Both may be appealed and during the appeal period, the requirements in question do not apply. Since appeals may take a long time and no effluent improvement will occur in the appeal period, a consensus is often reached by the discharger and the ministry before the control document is issued in order to achieve immediate effluent improvement.

For several sources there are federal limits in place, through regulations under The Fisheries Act. (See Appendices F-6, F-7 and F-10 in Volume II)

A certificate of approval for wastewater treatment works is issued under The Ontario Water Resources Act. Many existing certificates approve the installation of effluent treatment systems but do not set effluent limits nor monitoring or reporting requirements. New certificates, as will control orders, set effluent limits and usually include monitoring and reporting requirements. These conditions are appealable as well.

2.4 Site-Specific Requirements

Before any site-specific effluent requirements are set, Ministry staff review the impact of the effluent based upon the assimilative capacity of the receiving water. This water quality approach is embodied in a policy booklet, " Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment", revised May 1984. For contaminants which are not considered to be persistent toxic contaminants, every river or lake has a definable assimilative (self-purification) capacity. Water quality con-

siderations take precedence when degradable discharges exceed the assimilative capacity of the receiving waters, even though the discharged loadings are within the limits set by federal guidelines or regulations. In these cases, more stringent requirements based on the receiver's limited assimilative capacity are used to set effluent loading limits. For example, a biochemical oxygen demand loading limit may be set to meet the provincial water quality objective for dissolved oxygen in the receiving water provided that it is more stringent than any federal requirement. If the discharge from a site met Ontario's Provincial Water Quality Objectives for a specific contaminant and there are no federal rules, then the provincial concentration guidelines, "Objectives for the Control of Industrial Waste Discharges in Ontario", 1966, are used to set effluent requirements.

2.5 Industrial Guideline Requirements

The 'concentration' approach was incorporated into provincial guidelines, initially on the basis of experience with municipal sewage treatment systems. It was presumed that where industry used the same effluent treatment technology as the municipalities, both effluents should have the same pollutant concentration limits. However, many industrial wastewater effluents have different characteristics than municipal wastewaters, and the use of similar effluent treatment systems does not produce similar pollutant concentrations. Other guidelines were developed for specific industrial sectors and are based on the state of treatment technology for that sector at the time of writing. A number of guidelines are used to assess acceptable effluent quality for the majority of industrial discharges. (See Appendices F-3, F-4, F-5, F-10 and F-11 of Volume II).

Many plants now have limits set on a loading basis, e.g.,kilograms discharged per day, rather than on an effluent concentration basis. This recognizes that it is the loadings to the environment rather than concentrations that are important. Where the pollutant concentration is high but the effluent volume is small, the loading is small; if the receiver is large as well, the environmental impact may be further diminished.

2.6 MISA Program

The objective of the MISA program is the virtual elimination of persistent toxics from Ontario's waterways. The MISA program consists of two phases. The first phase is to collect effluent data, the second to develop limit regulations. The effluent monitoring or data collection phase of the program for the nine industrial sectors has been completed. All nine industrial sectors have submitted twelve months of effluent quality data to the ministry as required by the regulations. After the data has been reviewed, it is released in separate MISA documents.

Consultants were hired to report on the best available technology for each industrial sector. The consultants were given two objectives:

- to evaluate the current status of treatment technology at each Ontario plant
- to identify the performance and cost of best available technology worldwide for each sector

The consultant reports together with MISA monitoring data are being used to develop limit regulations, according to procedures stated in the Ministry's policy document, " MISA Issue Resolution Process Final Report Summary", September 1991. To ensure that the regulations are technically sound, the MISA program includes consultation with interested and affected parties through the Joint Technical Committees (JTC). The JTC for each industrial sector consist of representatives from the Ministry of the Environment, Environment Canada and the affected dischargers.

2.7 Toxicity

Toxicity tests are used to identify industrial effluents that are acutely lethal to aquatic organisms. Since 1965 the ministry has been using the survival of rainbow trout in effluent as the method of measuring the acute lethality of a discharge. Rainbow trout are exposed to a series of dilutions of the effluent over a period of four days and the mortalities are observed. From these observations an estimate of the concentration that kills 50% of the fish during 96 hours of exposure is made. The survival of 50% or more of the trout for 96 hours in a test concentration of 100% effluent is a generally accepted discharge criteria. When all the fish survive for 96 hours in undiluted effluent, the effluent is non-acutely lethal. Thus, the acute lethality tests indicate not only whether the effluent is toxic but also indicate how toxic it is.

Neither rainbow trout nor Daphnia magna are the most sensitive organisms in aquatic environments. They have been chosen as a test species partly because they are robust enough to be grown in a laboratory. To adequately evaluate the full biological impact of pollutants, a series of different toxicity tests are done. The MISA monitoring regulations required the use of Daphnia magna as the second acute lethality test species.

MISA toxicity data covers 208 industrial dischargers, which include the 167 industries for which other discharge data are provided in this report. The toxicity test results in this report are from either government or private consultant laboratories. Industry used private laboratories to meet MISA monitoring regulation requirements for toxicity monitoring. In most cases, each discharger was required to monitor all final or process effluents on a monthly schedule and cooling water discharges on a quarterly schedule. A few dischargers voluntarily provided additional bioassay data on the intake water supply. This report includes only a portion of the MISA data, since the

monitoring period did not coincide within the time frame of this report. For a complete review of acute toxicity data generated by the MISA monitoring regulations, please refer to sector-specific MISA acute toxicity publications, e.g., Acute Lethality Data For Ontario's Organic Chemical Manufacturing Sector Effluents Covering The Period From October 1989 To March 1990.

Table A is a summary of the acute lethality results for the nine MISA industrial sectors. Effluent samples from 208 MISA sites were subjected to trout and Daphnia testing, and the total number of effluent samples tested is shown in the Table. An example of the information available in Table A is the Inorganic Chemical Manufacturing sector. The Table shows that in this sector, effluent samples from 25 sites were subjected to 392 trout and 383 Daphnia tests. Several sites in this sector have more than one discharge pipe and each pipe was evaluated individually. In 55 trout tests less than half the fish survived at full strength effluent while less than half the Daphnia survived in 94 tests. During the year 12 of the 25 sites had at least one trout test where less than half the fish survived and 18 of the 25 sites had at least one Daphnia test where less than half the animals survived.

Table A

SUMMARY OF MISA TROUT AND DAPHNIA TOXICITY TESTING DATA FOR 1990.

				TROUT		DAPHNIA	
	# Sites Tested	# Sites with trout LC50s <100% *	# Sites with Daphnia LC50s <100% *	# Samples Tested	# Samples with LC50 <100%	# Samples Tested	# Samples with LC50<100%
Electric Power Generation	17	13	13	506	98	503	129
Industrial Minerals	43	9	9	98	15	95	15
Inorganic Chemical	25	12	18	392	55	383	94
Iron and Steel	7	3	6	214	17	212	26
Metal Casting	10	3	5	38	16	34	13
Metal Mining	46	22	28	174	47	177	55
Organic Chemical	26	8	11	483	38	480	65
Petroleum Refining	7	0	0	29	0	29	0
Pulp and Paper	27	21	22	402	200	466	209
Totals	208	91	112	2336	486	2379	606

LC50 <100% means that less than 50% of the test animal survived in any concentration including 100% effluent.

* Site had at least one sample where less than 50% survived in full strength effluent.

3.0 COMPLIANCE AND EXCEEDANCES

Compliance in this report means that, for the year reported, the discharged effluent did not exceed ministry-set effluent criteria. Non-compliance is reported as the number of times in the year that any discharge exceeded MOE criteria. However, only the exceedances of legally enforceable limits in control orders, requirements and direction, certificates of approval and federal regulations may result in prosecutions. Guidelines are not legally enforceable.

The Ministry will continue to expect industrial dischargers to meet all numerical limits including guidelines until replaced by the limits set in the MISA limits regulations.

3.1 Compliance With Guidelines or Requirements

The actual monthly averages were compared to effluent requirements. Appendix A, Three Year Compliance Summary, at the end of this volume reports the compliance performance of dischargers.

Compliance status with monthly averages: *

Year and Number of Sources Reported	COMPLIANCE YES	NO
1990 - 167	77	90
1989 - 170	77	93
1988 - 168	77	91
1987 - 157	62	95

Compliance status of companies discharging into the Great Lakes Basin only:

Year and Number of Sources Reported	COMPLIANCE YES	NO
1990 - 137	70	67
1989 - 138	66	72
1988 - 140	65	75
1987 - 132	56	76

* Includes companies with site-specific requirements other than monthly average limits.

The 1990 results showed that industrial dischargers met individual monthly limits 7,196 times out of 7,966 monitored, or 90.3% of the time. This compares with 1989 where dischargers met limits 7,125 out of 8,139 monitored or 88% of the time. Individual monthly compliance for each company is

shown on the data sheets in Volume II, Appendix A. The 167 industrial plants in this report are less than the number of the sources reported in 1989 by 3 because 1 new discharger was added and 4 ceased operations. The number of dischargers in compliance in 1990 was 77 (46.1%) out of 167.

In the period from 1989 to 1990, twenty (20) companies that were not in compliance in 1989 achieved compliance in 1990. At the same time, however, twenty (20) companies that were in compliance in 1989 were out of compliance in 1990. In 1991, sixty-two (62) dischargers took actions to address 1990 non-compliance; nine (9) companies ceased operations for economic reasons; and the remaining nineteen (19) require further action to be in compliance.

4.0 ABATEMENT AND REMEDIAL ACTIONS

There are a number of reasons why a company may be out of compliance. These vary from isolated incidents (for example, breakdowns of equipment, operating or laboratory errors which are either one-time occurrences or are corrected at the time), to basic deficiencies in treatment capability. The former can occur at any time. The latter, however, may result in continuing non-compliance, since equipment changes or modifications are usually required to improve treatment effectiveness, changes which can take considerable time. The Ministry provides assistance to dischargers to develop an action plan which will bring the discharger into compliance.

Compliance action, which dischargers must undertake to follow orders issued by the Ministry, can often take several years to complete, because of the time required for identification of the problem, analysis of remedial options, selection of an option, purchase of equipment, delivery, installation, and start-up. In some cases there may be a quick fix. Often, however, a combination of process and equipment changes are required. Appendix B in this Volume is a review of action taken to address 1990 non-compliance.

Continuing long-term non-compliance without a remedial action program is unacceptable to the Ministry and can result in legal action against the offending discharger. The MISA program will address the issue of legally enforceable criteria for all companies, initially in the nine major industrial sectors, by setting effluent limits and compliance dates.

4.1 Enforcement Actions

Regional staff refer non-compliance occurrences to the Investigations and Enforcement Branch, formed in 1985, for investigation and possible follow-up with prosecution. Exceedance of a requirement, however, does not necessarily mean that charges are laid.

During 1990, a total of thirty nine certificate of approval and eighteen control order violations were forwarded to the Investigations and Enforcement Branch for further investigations. At forty seven sites no investigation was necessary because the dischargers agreed to take abatement action. As a result of the investigations, charges were laid against eight dischargers: two were fined, and six are in court. After an investigation of two dischargers, no charges were laid. Appendix C in this Volume summarizes these enforcement activities.

5.0 LOADING TRENDS

5.1 Total Average Annual Loadings

A loading trend is a plot of the average daily loadings during a year for a number of years. The daily loadings for each month are used to calculate a monthly average; the monthly averages for each discharger are summed and divided by the reported months (some dischargers do not discharge every month) to produce the daily average for that year. The sum of all the average discharges for the year is the total average annual loading in tonnes per day. Since all dischargers do not control and monitor the same parameters, this loading curve is an aggregate indicator of the total pollutant load. For consistency and so as not to distort the curve, only dischargers operating and reporting consistently from 1985 through to 1990 inclusive are included.

Figure 1, Historical Loading Trend, shows the loadings trend for discharges in Ontario from 1985 to 1990. The electric power generation sector was excluded because the only parameters reported consistently through the years, effluent temperature and temperature rise, do not produce a meaningful trend. There has been a decrease in the discharge of pollutants for each year although there are two peaks shown in 1988 and 1990. The peaks are due to loadings from General Chemical and Sifto Salt in 1988, and General Chemical in 1990. In Figure 1b, the lower plot shows the trend when the loadings from these two sources are excluded from the data used to plot the trend shown in Figure 1. The top plot in Figure 1b is the trend for General Chemical and Sifto Salt.

5.2 Loading Trends for Petroleum Refining, Iron & Steel, Pulp & Paper

The loading trends for these three sectors are shown in Figure 2, Historical Loading Trends - Three Key Sectors. While there has been a decrease in loadings for the three sectors, the total loadings for each sector are in three different ranges. The difference in range is due to three factors: the number of dischargers in each sector, the state of effluent control in the sector and water usage in the sector.

Petroleum Refining

The petroleum refinery loading trend effluent is the sum of four parameters: total suspended solids, phenolics, ammonia-nitrogen and solvent extractables. The low discharge loadings from seven refineries are the result of in-plant and external effluent treatment at all sites.

All seven petroleum refineries have extensive effluent treatment systems in place and three have improved their treatment system in the past five years. The two newest refineries discharge the lowest effluent volume and pollutant loadings of the seven refineries. Three of the older refineries have made improvements to their effluent treatment systems.

Iron and Steel Plants

Treated effluent from four steel producing plants includes total suspended solids, iron, ammonia, phenolics, cyanide, and solvent extractables. The loading curve is the sum of these parameters. The four primary iron and steel plants have some treatment systems in place. These treatment systems have reduced ammonia, cyanide and phenolics loadings. Total suspended solids and iron have shown further declines since the installation of additional removal systems. The newest primary iron and steel plant, STELCO at Nanticoke, has the lowest effluent volume and pollutant loadings.

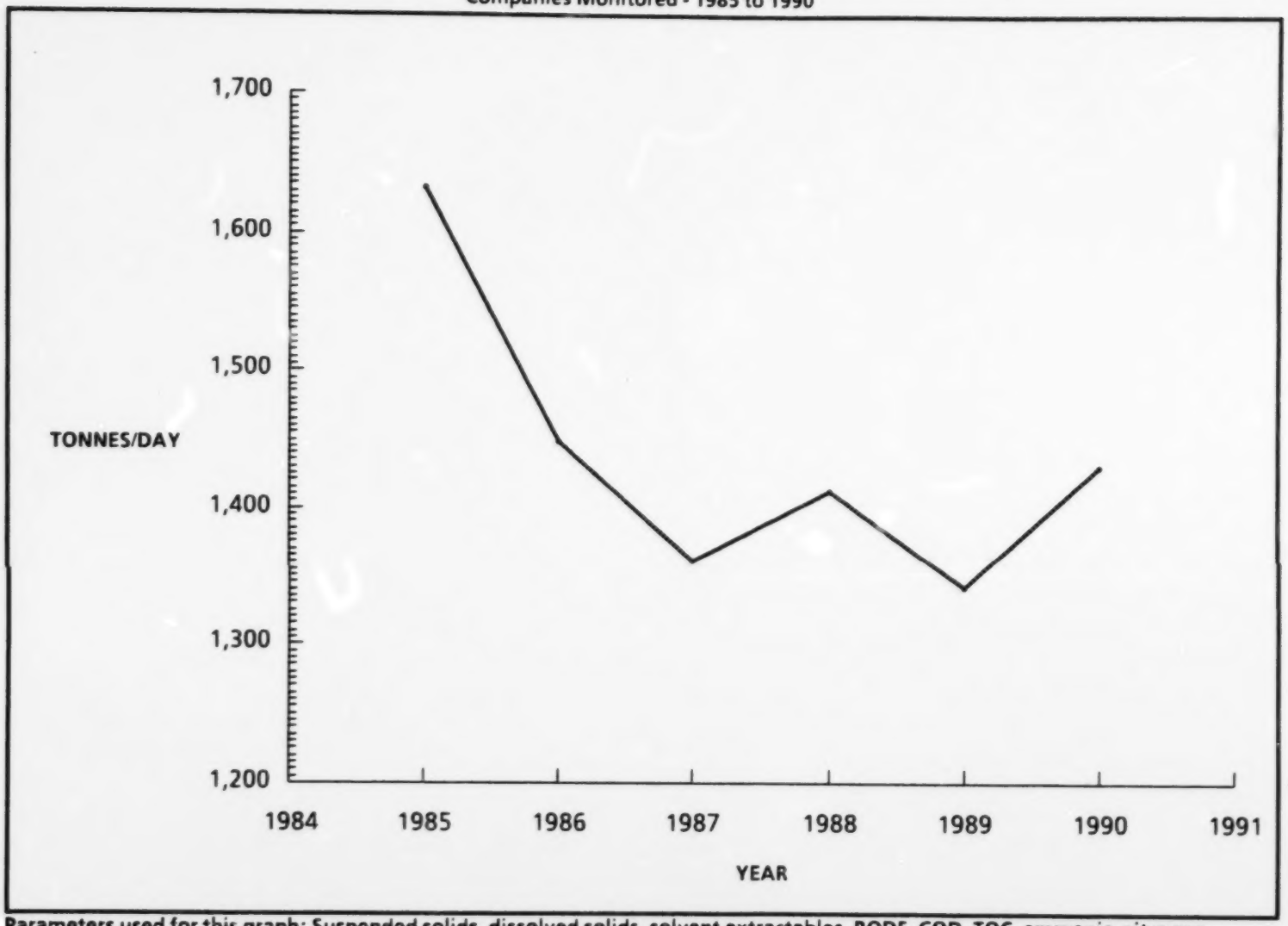
Pulp and Paper Mills

The quality of pulp and paper effluent is judged primarily by Biochemical Oxygen Demand (BOD) and total suspended solids (TSS). The loading curve is the sum of these two parameters and when plotted little change can be seen for the period 1987 through 1989. The discharge of these pulp and paper mill contaminants can be reduced by external treatment, in-mill process changes, or some combination of these two. Further loading reductions will occur as more mills install secondary treatment systems. A BOD decrease in 1990 at Kimberly-Clark Canada, Terrace Bay was due to the new secondary effluent treatment system going onstream in the fall of 1989. Another BOD decrease resulted in 1991 when the secondary treatment at Canadian Pacific Forest Products at Thunder Bay went onstream. Nine out of twenty seven mills have secondary treatment.

Figure 1

HISTORICAL LOADING TREND

Companies Monitored - 1985 to 1990

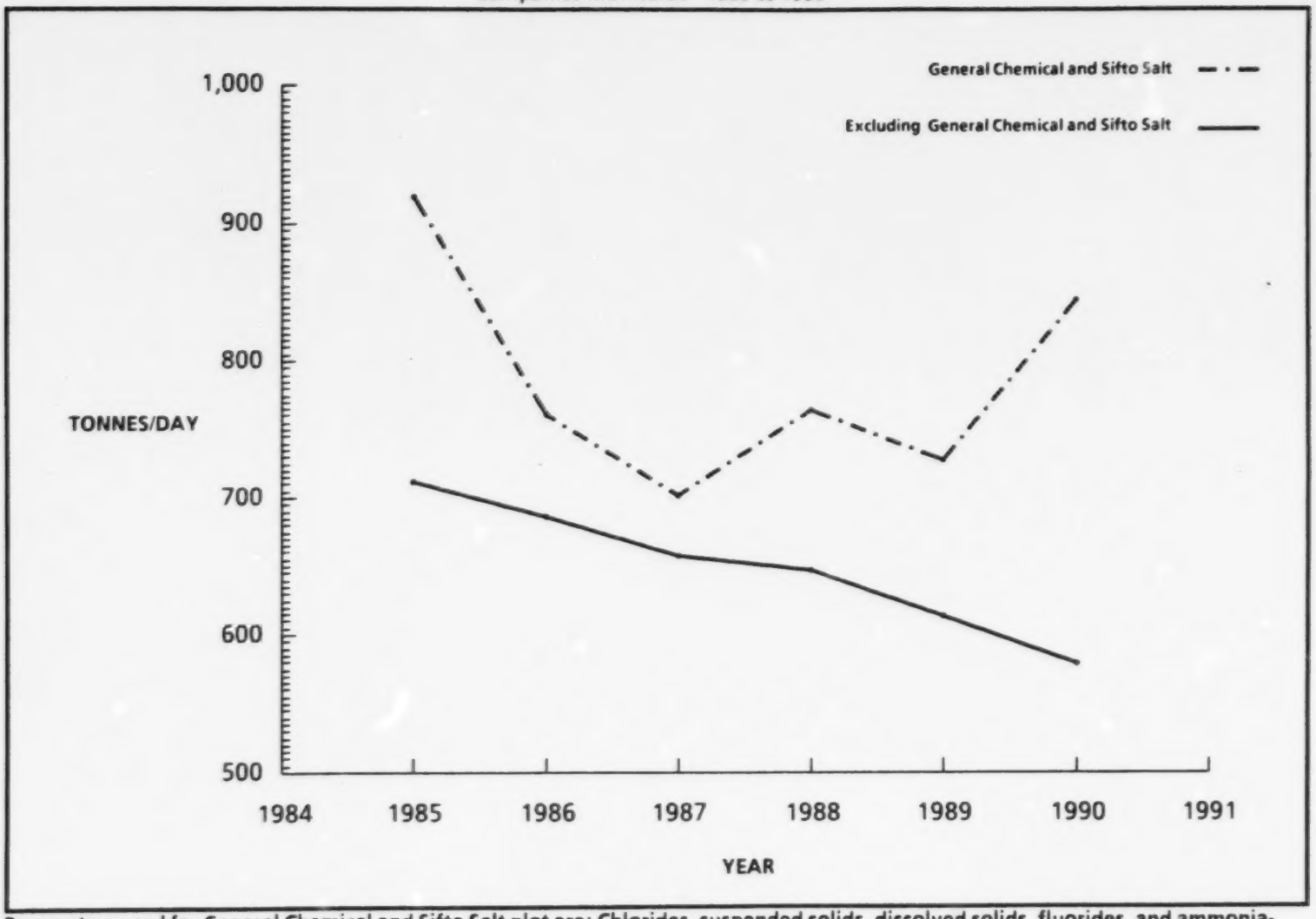


Parameters used for this graph: Suspended solids, dissolved solids, solvent extractables, BOD5, COD, TOC, ammonia-nitrogen, phenolics, phosphorus, copper, chromium, iron, lead, nickel, zinc, chlorides, fluoride, arsenic, cyanide, and sulphates.

Figure 1b

HISTORICAL LOADING TRENDS

Companies Monitored - 1985 to 1990

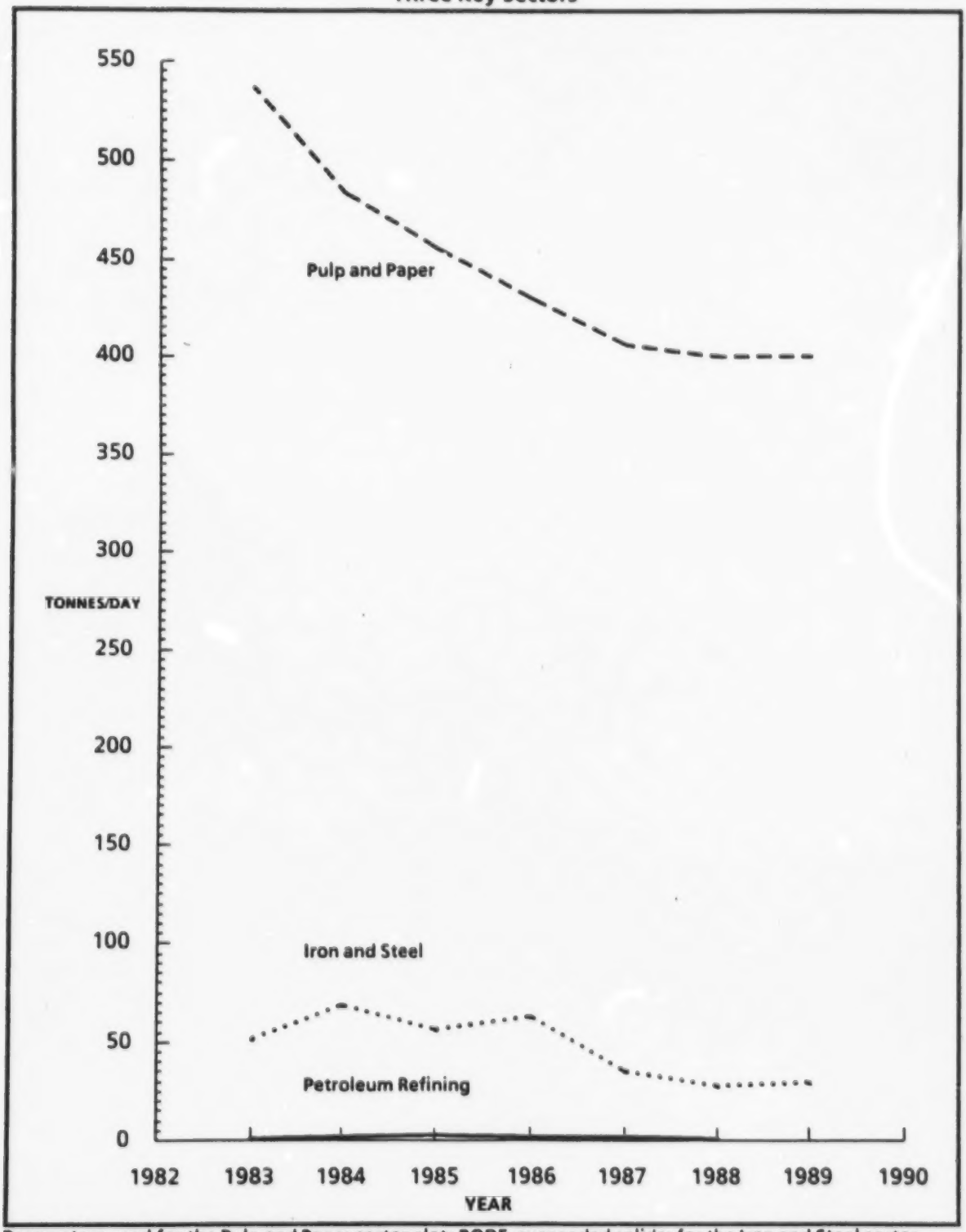


Parameters used for General Chemical and Sifto Salt plot are: Chlorides, suspended solids, dissolved solids, fluorides, and ammonia-nitrogen. Parameters for the lower plot which excludes these two companies are listed in Figure 1.

Figure 2

Historical Loading Trends

Three Key Sectors



Parameters used for the Pulp and Paper sector plot: BOD5, suspended solids; for the Iron and Steel sector plot: suspended solids, solvent extractables, ammonia-nitrogen, phenolics, cyanide, and iron; and for the Petroleum Refining Sector plot: suspended solids, solvent extractables, ammonia-nitrogen, phenolics.

6.0 SELF MONITORING REQUIREMENTS AND AUDIT PROCESS

All of the plants included in this report monitor their own discharges. Prior to the MISA monitoring regulations, most dischargers monitored their effluents on an agreed upon voluntary basis. For some dischargers, the monitoring requirement and schedules were specified in control orders, certificates of approval or federal regulations such as the Chloro-Alkali Regulation.

The bulk of the effluent data in the 1990 report was collected under MISA monitoring regulations which included quality assurance and quality control measures. During the MISA monitoring period, the ministry used the audit activity to ensure samples were collected according to MISA protocols and took audit samples to verify data. The MISA audit program consisted of one of the following actions:

1. Twenty-four hour composite samples were split between the plant and the Ministry, and results were compared.

2. Grab-samples were split between the plant and the Ministry, and the samples compared.

3. Samples were taken by the Ministry, and the results were compared to the industry's reported results .

4. In some cases, where conditions warranted, intensive cross-industry audits were done.

5. For those dischargers subject to the MISA regulations, intensive on-site inspections were conducted as part of the implementation of those regulations for that sector.

7.0 DATA MANAGEMENT SYSTEMS

A variety of data management systems are used to collate data for the preparation of the annual discharge reports. These systems are:

- the Industrial Monitoring Information System (IMIS)
- the MISA Data Entry System (MIDES)
- the Sample Information System (SIS)
- the Toxicity Data Entry System (TOXDATA)

IMIS, a data storage and reporting program was one of the two systems used to gather data for this report. Discharge data from the industrial plants were submitted on paper copy to the Ministry of the Environment District offices. Ministry staff in turn, transferred the data to IMIS via a personal computer (PC) linked to the central mainframe computer in Toronto. Some of the data tables, as reported in Volume II, Appendix A, were created from the IMIS data banks.

This system was sufficient for data processing where typically a company would monitor from two to a dozen parameters (pollutants) at only a few sample locations. Under the MISA Monitoring Regulations, companies were monitoring from a few parameters to more than one hundred at more than thirty sample locations. The number of parameters and sample locations varied from company to company and from sector to sector.

Because of the large amount of data that was being generated under the MISA monitoring regulations, it was necessary for the industries to submit MISA data in a specified Electronic Transfer File (ETF) format acceptable to the Ministry.

The MIDES program was designed by the Ministry of the Environment, as a PC-based system, for use by the discharger to report analytical data. This system allows dischargers under the monitoring regulations to enter MISA data and submit this data in an ETF format on computer diskettes to the Regional Ministry offices. MIDES also prepares and prints hard copy reports of the data for submission to the Ministry.

The regional Ministry offices have enhanced versions of MIDES that allow preparation of ETF files for transmission to the corporate SIS system.

The Sample Information System (SIS) is a database storage system for many Ministry programs and is the final destination for all MISA data obtained under the Monitoring Regulations.

Under the MISA program dischargers were also required to determine the relative acute toxicity of their discharge. This entailed testing the effect of the

sample effluent on either trout or Daphnia magna, and measuring the degree of lethality.

The TOXDATA system was designed to allow the discharger to enter this toxicity data and generate the Electronic Transfer File and printed reports required by the Ministry. Computer diskettes containing TOXDATA files were sent to the Limnology Section - Toxicity Unit of the Water Resources Branch for compliance verification and entry into the central TOXDATA data base.

8.0 INQUIRIES

Inquiries about a specific source's effluent loadings, abatement program and compliance may be directed to the corresponding Ministry Regional Office or District Offices (see Figure 3). The addresses and phone numbers of the six regions and their respective district offices are listed in Volume I, Appendix D).

Volume II of this report, - "Data for Individual Plant Performance" is available separately. Copies of both volumes of this report are available from:

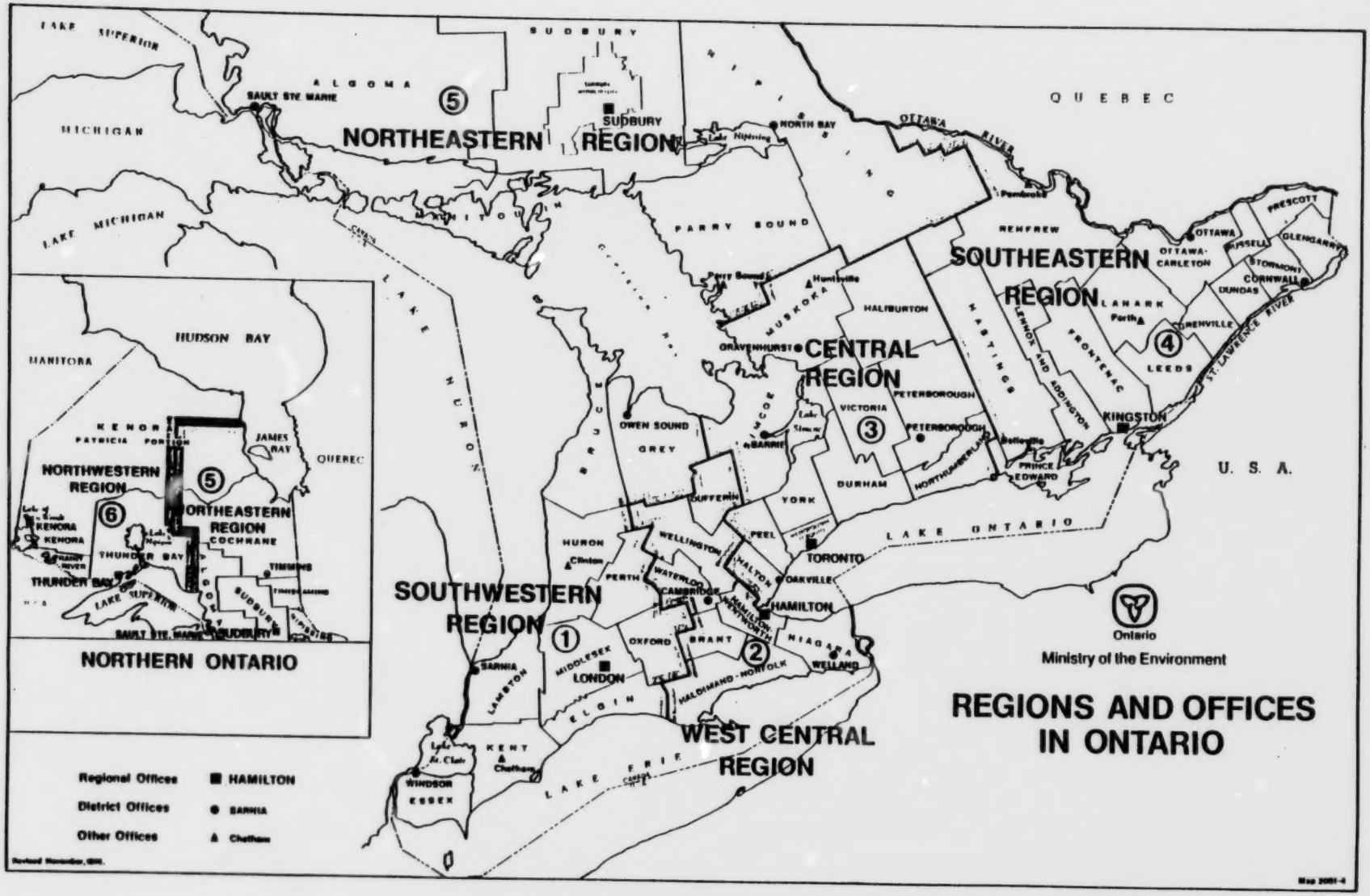
Public Information And Inquiry Services
Ministry of the Environment
135 St. Clair Ave. West, 2nd Floor
Toronto, Ontario
M4V 1P5

(416) 323-4321

9.0 REFERENCES

For further reading on industrial discharges, municipal STPs, and other environmental issues, please contact the Ministry's Public Information office listed above.

Figure 3.


NORTHEASTERN REGION
5
SUDBURY
SAULT STE. MARIE
ALGOMA
NORTH BAY
PARRY SOUND
NIPISSING
SOUTHEASTERN REGION
4
OTTAWA-CARLETON
RENFREW
LANARK
LEEDS
GRENVILLE
DUNDAS
STORMONT
CORNWALL
PRESCOTT
RUSSELL
GLENGARRY
CENTRAL REGION
3
HALIBURTON
MUSKOKA
GRAVENHURST
HUNTSVILLE
VICTORIA
PETERBOROUGH
HASTINGS
LENNOX AND ADDINGTON
FRONTENAC
KINGSTON
PRINCE EDWARD
SOUTHWESTERN REGION
1
OWEN SOUND
GREY
BARRIE
SIMCOE
DUFFERIN
YORK
PEEL
TORONTO
OAKVILLE
HALTON
HAMILTON
WENTWORTH
BRANT
2
NIAGARA
WELLAND
HURON
PERTH
WELLINGTON
WATERLOO
CAMBRIDGE
OXFORD
LONDON
MIDDLESEX
SARNIA
LAMBTON
ELGIN
HALDIMAND-NORFOLK
KENT
CHATHAM
WINDSOR
ESSEX
WEST CENTRAL REGION
LAKE ONTARIO
LAKE ERIE
LAKE HURON
LAKE MICHIGAN
LAKE SUPERIOR
MICHIGAN
OTTAWA RIVER
ST. LAWRENCE RIVER
QUEBEC
U. S. A.
NORTHERN ONTARIO
HUDSON BAY
MANITOBA
KENORA
PATRICIA PORTION
JAMES BAY
NORTHWESTERN REGION
6
NORTHEASTERN REGION
COCHRANE
TIMMINS
THUNDER BAY
Regional Offices
HAMILTON
District Offices
SARNIA
Other Offices
Chatham
Ontario
Ministry of the Environment
REGIONS AND OFFICES IN ONTARIO

10.0 GLOSSARY OF TERMS AND ABBREVIATIONS

Ammonia plus Ammonium (Total ammonia) is a measure of ionized and un-ionized ammonia. The amount of un-ionized ammonia depends upon pH and temperature; concentrations of un-ionized ammonia above 0.02 mg/L are toxic to fish.

Biochemical Oxygen Demand (BOD) is a measure of the oxygen used, usually over a 5 day period, to biodegrade organic and some inorganic material. The amount of oxygen used over the test period is reported as mg/L.

Certificate of Approval (C of A) is a legal document issued at the discharger's request and the issuance of which signifies ministry approval to construct. New C of As include effluent limits and monitoring requirements.

Chemical Oxygen Demand (COD) is a measure of the total oxygen to degrade organic and inorganic material by chemical oxidation. Characteristic relationships between COD,BOD, TOC and DOC may be established for a given wastewater.

Compliance is a measure of the discharger's performance in meeting ministry effluent requirements which may be legal limits or guidelines throughout the year.

Control Order is a legal document initiated by the ministry that requires the discharger to take specific action with an associated deadline.

Dissolved Organic Carbon (DOC) is a measure of the total dissolved organic material.

Oil and Grease (Solvent Extractables) is a measure of dissolved hydrocarbons, oils, greases, surfactants, etc., which may be visible as a sheen on the water surface. This test yields variable data depending on sampling procedures, the solvent used for extraction and the types of hydrocarbons present in the sample.

pH is a measure of hydrogen ion concentration on a logarithmic scale of O (acidic) to 14 (pH 12 - ammonia). Surface waters have a pH range of 6 to 7.

Phenolics (4AAP) is the result of the total phenolics by the 4-amino antipyrine test and is an indicator of some types of pollution.

Sulphides (usually hydrogen sulphide) is a measure of sulphides and can be toxic to fish (depends upon pH, temperature and dissolved oxygen).

Total Kjeldahl Nitrogen (TKN) is a measure of both organic nitrogen and total ammonia; acts as an aquatic plant nutrient.

Total Nitrates and Nitrites (NO3 and NO2) is a measure of the oxidized forms of nitrogen and must be less than 10 mg/L in drinking water.

Total Organic Carbon (TOC) is a measure of the total dissolved and suspended organic material.

Total Phosphorus (P) is a measure of the total phosphorus content and is an aquatic plant nutrient.

Total Suspended Solids (TSS) is a measure of suspended organic and inorganic material.

Appendix A
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
Abitibi-Price Inc. (Iroquois Falls Division)	Iroquois Falls	A-1	Y	Y	N
Abitibi-Price Inc. (Fort William Division)	Thunder Bay	A-2	N	Y	Y
Abitibi-Price Inc. (Provincial Papers Division)	Thunder Bay	A-4	Y	Y	N
Abitibi-Price Inc. (Thunder Bay Division)	Thunder Bay	A-5	N	N	N
Algoma Steel	Sault Ste. Marie	A-6	N	N	N
American Barrick Resources	Kirkland Lake	A-8	-	Y	N
American Standard - Division of Wabco	Cambridge	A-9	N	N	N
Atlas Speciality Steels	Welland	A-10	N	N	Y
Ault Foods Ltd.	Winchester	A-11	Y#	N#	N#
Beaver Wood Fibre Company	Thorold	A-12	Y	Y	Y
B.F. Goodrich	Niagara Falls	A-13	Y	Y	N
Boise-Cascade Canada Ltd.	Fort Frances	A-15	Y	Y	N
Boise-Cascade Canada Ltd.	Kenora	A-16	Y	Y	Y
Bond Gold Canada Ltd.	Sioux Lookout	A-17	-	Y	Y
BTL Speciality Resins	Belleville	A-18	N	N	N
Cameco	Blind River	A-19	Y	Y	Y
Cameco	Port Granby	A-20	N	N	N
Cameco	Port Hope	A-21	Y	Y	N
Cameco	Welcome	A-22	N	Y	Y
Campbell Soup Company Ltd.	St. Marys	A-23	N	N	N
Canadianoxy Chemicals Ltd.	Fort Erie	A-24	N	N	N
Canadian Pacific Forest Products Ltd.	Dryden	A-25	Y	Y	Y
Canadian Pacific Forest Products Ltd.	Thunder Bay	A-26	Y	Y	N
Casco Ltd.	Cardinal	A-28	N	N	N

* Based on Monthly Averages except where noted by #, are based on Annual Averages.
The Three Year compliance information is extracted from the annual Industrial Direct Dischargers Reports. Dischargers with legal criteria such as Control Orders or Certificates of Approval may also have parameters assessed by provincial guidelines. Non-compliance as listed in Table 1 may be with legal criteria, guideline numbers or both.

For more detailed compliance assessment refer to the appropriate annual dischargers report.

"PAGE NUMBER" refers to the "Report on the 1990 Industrial Direct Discharges in Ontario - Volume II: Appendices".

Appendix A ... continued
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
Celanese Canada Ltd.	Kingston	A-29	Y	Y	Y
Champlain Industries Ltd.	Tara	A-30	Y	Y	N
Cornwall Chemicals Limited	Cornwall	A-31	N	N	N
Courtaulds Fibres	Cornwall	A-32	N	N	N
Cyanamid Canada Inc.	Niagara Falls	A-33	N	N	Y
Cyanamid Canada Inc. Welland Plant	Welland	A-34	N	Y	N
Deak Resources (formerly Golden Shield Res.)	Virginiatown	A-36	N	N	N
Denison Mines Ltd. (Stanrock)	Elliot Lake	A-37	Y	Y	Y
Denison Mines Ltd. (Stollery Lake)	Elliot Lake	A-38	N	Y	Y
Denison Mines Ltd. (Williams Lake Tailings)	Elliot Lake	A-39	Y	Y	Y
Dickenson Mine Ltd. (A.W. White Mine)	Balmertown	A-40	N	N	N
Dofasco Inc.	Hamilton	A-41	Y	N	N
Dofasco Inc. - Adams Mine	Kirkland Lake	A-43	N	N	N
Domtar Inc. (Containerboard Division)	Trenton	A-44	N	N	N
Domtar Inc. (Fine Papers Division)	Cornwall	A-45	Y	N	N
Domtar Inc. (Fine Papers Division)	St. Catherines	A-46	N	N	N
Domtar Inc. (Containerboard Division)	Red Rock	A-47	N	N	N
Domtar Inc. (Wood Preserving Division)	Trenton	A-48	N	N	N
Dow Chemical Canada Ltd.	Sarnia	A-50	Y	Y	Y
Dupont Canada Inc.	Corunna	A-51	Y	Y	Y
Dupont Canada Inc.	Kingston	A-52	Y	Y	Y
Dupont Canada Inc.	Maitland	A-53	Y	Y	Y
Eastmaque Gold Mines	Kirkland Lake	A-54	Y	N	N
E.B. Eddy Forest Products Ltd.	Espanola	A-55	Y	Y	N
E.B. Eddy Forest Products Ltd.	Ottawa	A-56	N	N	N
Esso Chemical Canada Ltd.	Sarnia	A-57	Y	Y	Y
Esso Petroleum Canada Ltd.	Nanticoke	A-58	Y	Y	Y
Esso Petroleum Canada Ltd.	Sarnia	A-59	Y	Y	Y
Essroc Canada Inc.	Picton	A-60	N	N#	Y#
Ethyl Canada Inc.	Corunna	A-61	Y	Y	Y
Exolon-Esk Company of Canada Ltd.	Thorold	A-62	Y	Y	Y
Explosive Technologies Int. Inc. (ETI)	North Bay	A-63	Y	N	N

Appendix A ... continued
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
Falconbridge Gold Corp. (Bell Creek Mine) (formerly Canamax Resources)	Porcupine	A-64	N	N	N
Falconbridge Ltd. (N.I.R. Rd.)	Falconbridge	A-65	N	N	N
Falconbridge Ltd. (Kidd Creek Met. Site)	Timmins	A-66	N	N	N
Falconbridge Ltd. (Kidd Creek Mine Site)	Timmins	A-67	N	N	N
Falconbridge Ltd. (Lockerby Mine)	Denison	A-68	N	Y	Y
Falconbridge Ltd. (Moose Lake W.W.T.P.)	Onaping Falls	A-69	N	N	N
Falconbridge Ltd. (Onaping Mine)	Onaping Falls	A-70	N	N	Y
Fiberglas	Sarnia	A-71	N	Y	Y
Fleet Manufacturing Company Ltd.	Fort Erie	A-72	Y	N	Y
Ford Motor Company Ltd.	Niagara Falls	A-73	N	N	Y
Ford Motor Company Ltd.	St. Thomas	A-74	N	N	Y
Ford Motor Company Ltd.	Windsor	A-75	N	N	N
Gay Lea Foods Co-op Ltd.	Teeswater	A-76	N	N	Y
G.E. Plastics Ltd.	Cobourg	A-77	N	N	Y
General Chemical Canada Ltd.	Amherstberg	A-78	Y	N	N
General Motors Company Ltd.	St. Catharines	A-79	N	N	N
Glen Ayr Kitten Mills	Lanark	A-80	-	N	N
Haley Industries	Haley	A-81	N	N	N
Hemlo Gold Mines	Marathon	A-82	Y	Y	Y
Highline Produce Ltd. (formerly Campbell's Mushroom Farm)	Wellington	A-83	N	N	N
I.C.I. Canada Inc. Conpak (formerly Stanchem Ltd.)	Cornwall	A-84	N	N	N
I.C.I. Canada Inc.	Courtright	A-85	Y	Y	Y
I.C.I. Forest Products (formerly I.C.I. Canada)	Cornwall	A-86	N	N	N
Inco Ltd. (Copper Cliff Nickel Refinery)	Copper Cliff	A-87	Y	N	N
Inco Ltd. (Copper Cliff W.W.T.P.)	Copper Cliff	A-88	N	N	N
Inco Ltd. (Crean Hill Mine)	Copper Cliff	A-89	N	N	N
Inco Ltd. (Garson Mine)	Copper Cliff	A-90	N	N	N
Inco Ltd. (Levack Tailings Area)	Copper Cliff	A-91	N	N	N
Inco Ltd. (Nolin Creek W.W.T.P.)	Copper Cliff	A-92	N	N	N
Inco Ltd. (Metals Refinery)	Port Colborne	A-93	Y	Y	Y
Inco Ltd. (Shebandowan Property)	Shebandowan	A-94	-	Y	Y

Appendix A ... continued
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
International Minerals and Chemicals	Dunnville	A-95	Y	Y	Y
James River-Marathon, Ltd.	Marathon	A-96	Y	Y	Y
J.M. Schneider Inc.	Ayr	A-97	Y	Y	N
Kimberly-Clark of Canada Ltd.	Huntsville	A-98	Y	Y	N
Kimberly-Clark of Canada Ltd.	St. Catharines	A-99	N	Y	N
Kimberly-Clark of Canada Ltd.	Terrace Bay	A-100	N	Y	Y
Kraft Foods Ltd.	Ingleside	A-101	N	N	N
Lac D'Amiante Du Quebec Ltee. (Aquarius)	Timmins	A-102	N	N	N
Lac Minerals (Macassa Division)	Kirkland Lake	A-103	Y	N	N
Lafarge Canada Inc.	Bath	A-104	Y	Y	Y
Luzenac Inc.	Foleyet	A-105	N	N	Y
MacMillan Bloedel Ltd.	Sturgeon Falls	A-106	Y	Y	N
Malette Kraft Pulp and Power	Smooth Rock Falls	A-107	Y	Y	Y
Mattabi Mines Ltd.	Kenora District	A-108	N	N	N
McBean Mine Ltd.	Dobie	A-109	N	N	N
Minnova Inc. (Winston Lake Project)	Schreiber	A-110	N	N	N
Mitsubishi Electronics Ind. Can. Inc.	Midland	A-111	Y	Y	N
Nabisco Brands Ltd. (formerly Canadian Canners)	St. Davids	A-112	Y	Y	Y
Nestle Enterprises Ltd.	Chesterville	A-113	N	N	N
Nitrochem Inc.	Maitland	A-114	N	N	N
Noranda Forest Inc.	Thorold	A-115	N	N	N
Noranda Inc. (Lyon Lake Division)	Ignace	A-116	Y	N	N
Noranda Minerals Inc. (Geco Division)	Manitouwadge	A-117	N	N	Y
Northern Wood Preservers Ltd.	Thunder Bay	A-118	N	N	N
Norton Company	Niagara Falls	A-119	Y	Y	Y
Novacor Chemicals Canada Ltd.	Mooretown	A-120	N	N	N
Novacor Chemicals Canada Ltd. (formerly Nova Petrochemicals Inc.)	Corunna	A-121	Y	Y	Y
Ogilvie Mills Ltd.	Thunder bay	A-122	N	N	N
Ornstead Foods Ltd.	Wheatley	A-123	N	N	N
Ontario Hydro (Atikokan TGS)	Atikokan	A-124	Y	Y	Y
Ontario Hydro (Bruce NPGS - STP)	Tiverton	A-125	Y	Y	Y

Appendix A ... continued
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
Ontario Hydro (Bruce NPGS - Station A, B)	Tiverton	A-126	Y	Y	Y
Ontario Hydro (Bruce NPGS - Heavy Water)	Tiverton	A-127	Y	Y	Y
Ontario Hydro (Lakeview TGS)	Toronto	A-128	Y	N	Y
Ontario Hydro (Lambton TGS)	Courtright	A-129	N	N	Y
Ontario Hydro (Lennox TGS)	S. Fredericksburg	A-130	Y	N	Y
Ontario Hydro (Nanticoke TGS - Ash Lagoon)	Nanticoke	A-131	N	Y	Y
Ontario Hydro (Nanticoke TGS - Cooling Water)	Nanticoke	A-132	Y	Y	Y
Ontario Hydro (Pickering NPGS - Station A, B)	Pickering	A-133	Y	Y	Y
Ontario Hydro (Thunder bay TGS)	Thunder Bay	A-134	Y	Y	Y
Orenco (Ontario Rendering)	Dundas	A-135	N	N	N
Petro Canada Products Inc.	Mississauga	A-136	N	N	N
Petro Canada Products Inc.	Oakville	A-137	N	N	N
Placer-Dome Inc. (Campbell Red Lake Mine)	Balmertown	A-138	N	N	N
Placer-Dome Inc. (Detour Lake Mine)	Timmins	A-139	N	N	N
Placer-Dome Inc. (Dome Mine)	South Porcupine	A-140	Y	Y	Y
Placer-Dome Inc. (Dona Lake Mine)	Pickle Lake	A-141	-	Y	Y
Polysar Rubber Corporation (formerly Nova Petrochemicals Inc.)	Sarnia	A-142	Y	Y	Y
Quebec and Ontario Paper Company Ltd.	Thorold	A-144	Y	Y	Y
Rexwood Products Ltd.	New Liskeard	A-145	N	N	N
Rio Algom Ltd. (Panel Mill)	Elliot Lake	A-146	Y	N	Y
Rio Algom Ltd. (Quirke Mill)	Elliot Lake	A-147	N	N	Y
Rio Algom Ltd. (Stanleigh Mill)	Elliot Lake	A-148	Y	Y	Y
Rohm and Haas	Morrisburg	A-149	Y	N	Y
Rothsay Ltd.	Rothsay	A-150	Y	N	N
Royal Oak Mines Inc. (Pamour) (formerly Giant Yellow Knife Mines)	Timmins	A-151	N	Y	N
Royal Oak Mines Inc. (Schumacher) (formerly Giant Yellow Knife Mines)	Timmins	A-152	N	N	Y
Shell Canada Products Ltd.	Corunna	A-153	Y	Y	Y
Sifto Canada Inc.	Goderich	A-154	N	N	N
Sonoco Ltd. Trent Valley Mills (formerly Trent Valley Paperboard Mills)	Glen Miller	A-155	N	N	N
Spruce Falls Inc. (formerly Spruce Falls Power and Paper Ltd.)	Kapuskasing	A-156	Y	Y	N

Appendix A ... continued
THREE YEAR COMPLIANCE SUMMARY

COMPANY NAME	LOCATION	PAGE NUMBER	COMPLIANCE *		
			1988	1989	1990
St. Andrew Goldfields Ltd.	Stock Twp.	A-157	-	-	N
St. Marys Paper Inc.	Sault Ste. Marie	A-158	N	Y	Y
Stanley Hardware	New Hamburg	A-159	N	N	Y
Stelco Inc. (Hilton Works)	Hamilton	A-160	Y	Y	Y
Stelco Inc. (Lake Erie Works)	Nanticoke	A-162	N	Y	N
Stelco Inc. (Page Hersey Works)	Welland	A-163	Y	Y	Y
Stelco Inc. (Welland Tube Works)	Welland	A-164	N	N	Y
Stepan Canada Inc.	Longford Mills	A-165	Y	Y	Y
Strathcona Paper Co.	Camden E. Twp.	A-166	Y	N	N
Suncor Inc.	Sarnia	A-167	Y	Y	N
Teck-Corona Inc. (David Bell Mine)	Marathon	A-168	Y	Y	Y
Tend-R-Fresh - Division Of Maple Leaf	Dundas	A-169	N	Y	Y
The Algoma Steel Corp. Ltd. (Ore Division)	Wawa	A-170	N	N	N
The Canadian Salt Company	Windsor	A-171	Y	Y	N
Valeo Engine Cooling Ltd.	Stratford	A-172	N	N	N
Washington Mills Ltd.	Niagara Falls	A-173	N	Y	Y
Washington Mills Ltd. (Electro Minerals)	Niagara Falls	A-174	Y	Y	Y
Wickes Manufacturing Co. Ltd.	Windsor	A-175	N	N	N
Williams Operating Corp.	Marathon	A-176	Y	Y	Y
Agnico Eagle Mines Ltd. (Penna Mine)	Coleman Twp.		N	N	Closed
Agnico Eagle Mines Ltd. (Refinery)	Coleman Twp.		N	N	Closed
Sherman Mine	Temagami		Y	N	Closed
Tend-R-Fresh - Division Of Maple Leaf	Petersburg		N	N	Closed

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Central Region

EXCEEDENCES	ACTIONS
Cameco **Port Granby** Federal Mining Effluent Regulation guideline for Arsenic was exceeded 11 times during 1990. **Page A-20**	No exceedances of the AECB licence were reported in 1990. The site will be decommissioned as soon as a federally appointed task force identifies a new site. **In Compliance Now:** **No**
Cameco **Port Hope** AECB Licence for monthly objective for NH_3-N was exceeded once during 1990. **Page A-21**	Elevated levels of ammonia in intake water resulted in the exceedance of the AECB Licence limit. **In Compliance Now:** **Yes**
Kimberly-Clark of Canada **Huntsville** Certificated of Approval limit for Phosphorous exceeded once during 1990. **Page A-98**	A review of operational parameters at the time of the exceedance did not identify any abnormalities. This exceedance is marginal and no environmental impact resulted from the exceedance. **In Compliance Now:** **Yes**
Mitsubishi Canada Inc. **Midland** The provincial guideline for Hexavelant Chromium was exceeded once during 1990. **Page A-111**	A faulty maintenance procedure may have caused this guideline exceedance. Maintenance procedures have been reviewed with a view to preventing a reoccurrence of this problem. **In Compliance Now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Central Region

EXCEEDENCES	ACTIONS
Petro-Canada Products Inc. **Mississauga Plant** The guidelines under the Ontario Effluent Quality Objectives for Petroleum Refineries were exceeded for parameters: suspended solids 4 times; phenols 3 times; and solvent extractables 1 time during 1990. **Page A-136**	Sludge handling procedures were modified in 1990 to remediate suspended solid levels. Exceedances of phenols and suspended solids were the result of decreased bacteria activity during cold weather. The exceedence of solvent extractables was a result of a single event equipment failure. **In Compliance now:** **Yes**
Petro-Canada Products Inc. **Oakville Plant** Certificate of Approval limits for suspended solids were exceeded 11 times and phenols were exceeded 4 times in 1990. **Page A-137**	A Storm Water Management Plan has been undertaken at this facility. Storm water retention ponds have been constructed to effectively manage storm water. In addition, wastewater treatment capacity will be increased. **In Compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
Abitibi-Price Inc. **Iroquois Falls** One exceedance of daily maximum limit for suspended solids contrary to Control Order. **Page # A-1**	The company implemented a new wood room in 1991 which is expected to lower total loading of suspended solids. **In compliance now:** **Yes**
Algoma Steel **Sault Ste Marie** Exceedances of suspended solids (1), oil and grease (2) contrary to Control Order. **Page # A-6**	The amending Control Order, issued September 23, 1988, required the construction of a filtration plant. The plant was commissioned in April 1990. The effluent is now in compliance for suspended solids, oil and grease, phenols, cyanide and ammonia. **In compliance now:** **Yes**
American Barrick Resources Corp. **McDermott Property, Kirkland Lake** Two exceedances of iron and one exceedance of mercury contrary to Certificate of Approval. **Page # A-8**	Prior to discharge, sampling indicated effluent complied. Exceedances are attributed to sediment disturbed by turbulence during discharge. **In compliance now:** **Yes**

Appendix B
Review of Actio' Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
Deak Resources Corporation **Kerr Mine/Mill** **Virginiatown** One exceedance each of arsenic, cyanide, nickel and suspended solids and five exceedances of iron contrary to Certificate of Approval. **Page # A-36**	The company applied for a Certificate of Approval to upgrade facilities in 1991. **In compliance now:** **No**
Dofasco Ltd. - Adams Mine **Kirkland Lake** Four exceedances of iron and one of suspended solids contrary to Guidelines. **Page # A-43**	Mine is being decommissioned in accordance with a plan accepted by an inter-ministry committee. Company continues to monitor the tailings management system as required by Certificate of Approval. **In compliance now:** **No**
Eastmaque Gold Mines Ltd. **Kirkland Lake** Three exceedances of suspended solids and two exceedances of iron contrary to Certificate of Approval. **Page # A-54**	Exceedances were caused by short circuiting in tailings management system. Company is taking action to prevent short circuiting of system. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
E. B. Eddy Forest Products **Espanola, Ontario** One exceedance of Control Order for BOD_5 on any one day. **Page A-55**	Exceedance was the result of problems associated with start up after a 21 day shutdown. The dissolved oxygen content in the river was predicted to be above the minimum requirement in the Control Order. All tests revealed non-toxic effluent. The Spills Prevention Strategy will address the procedures to deal with this problem in the future. **In compliance now:** **Yes**
Explosives Technologies Int. Inc. **North Bay** There were two exceedances of the suspended solids guideline. **Page # A-63**	Minor excedances of the suspended solids guideline do not cause any measurable impact on the receiver. The total daily loading is 30 kgms/day. No changes to the system are planned at this time. **In compliance now:** **Yes**
Falconbridge Gold Corporation **Bell Creek Mine** **Porcupine** One exceedance of arsenic contrary to Guidelines. **Page # A-64**	The company applied for and obtained approval for an improved three stage tailings management system along with increased mill circulation; construction was completed in 1990. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
Falconbridge Ltd. **Falconbridge, NIR Road** Two exceedances of iron and one exceedance of nickel contrary to Certificate of Approval. **Page # A-65**	A detailed study of the wastewater system is being conducted. The final report will be evaluated by MOE upon completion. **In compliance now:** **Yes**
Falconbridge Ltd. **Kidd Creek Mine Division** **Metallurgical Site** **Timmins** Six exceedances of zinc and one exceedance of suspended solids contrary to Guidelines **Page # A-66**	The company installed a computerized telemetry system in 1990 to provide improved quality control. **In compliance now:** **Yes**
Falconbridge Ltd. **Kidd Creek Mine Division** **Mine Site - Timmins** Two exceedances of zinc and one exceedance of suspended solids contrary to Guidelines. **Page # A-67**	The company dredged mine water settling ponds in 1991 to provide increased retention time. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
Falconbridge Ltd. **Onaping Falls, Moose Lake Wastewater Treatment** One exceedance of iron contrary to Certificate of Approval. **Page # A-69**	Treatment facilities were upgraded in 1990 to meet requirements of new Certificate of Approval. Lime treatment (instead of limestone) is being used as a result of the changes. **In compliance now:** **Yes**
INCO Ltd. **Copper Cliff Nickel Refinery** Two exceedances of nickel contrary to Guidelines. **Page # A-87**	Company is investigating feasibility of re-routing effluent to Copper Cliff tailings area. **In compliance now:** **No**
INCO Ltd. **Copper Cliff Creek Wastewater Treatment Plant** Exceedances of copper (1), iron (4), nickel (8) and suspended solids (8) in violation of Certificate of Approval. **Page # A-88**	A C of A with conditions requiring a study to address the present bypassing situation and assess the need for increased treatment capability was issued in July 1991. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
INCO Ltd. **Crean Hill Mine** Two exceedances of pH, 1 exceedance of nickel, and one exceedance of zinc contrary to Guidelines. **Page A-89**	Tailings effluent is batch treated with lime. No changes to this system are planned. **In compliance now:** **Yes**
INCO Ltd. **Garson Mine** Exceedance of iron (1), pH (1) and nickel (2) contrary to Guidelines. **Page # A-90**	Dredging of settling ponds was completed with the need for further retention being investigated. **In compliance now:** **No**
INCO Ltd. **Levack Tailings Area** Exceedances of suspended solids (4), pH (1), nickel (5) and iron (2) contrary to Guidelines. **Page # A-91**	An automatic lime addition system with continuous pH monitoring was installed in November 1989 with optimization of operation in 1990. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
INCO Ltd. **Nolin Creek Wastewater Treatment Plant** Exceedances of copper (4), iron (9), nickel (10) and suspended solids (6) in violation of Certificate of Approval. **Page # A-92**	A C of A with conditions requiring a study to address the present bypassing situation and assess the need for increased treatment capability was issued in July 1991. **In compliance now:** **No**
Lac D'Amiante du Quebec Ltee. **Aquarius Mine** **Porcupine** Two exceedances of suspended solids contrary to Certificate of Approval. **Page # A-102**	Mill is in a care and maintenance mode. Discharge is regulated by modified internal tailings management plan. Prior to milling operations restarting, a lift will be added to tailings area, thereby increasing retention time. **In compliance now:** **Yes**
Lac Minerals (Macassa Division) **Kirkland Lake** One exceedance of copper, two of iron and one of cyanide contrary to Certificate of Approval. **Page # A-103**	The company upgraded operational procedures for the new treatment plant. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
MacMillan Bloedel Ltd. **Sturgeon Falls** Four exceedances of suspended solids contrary to Control Order. **Page # A-106**	Exceedances were due to carry over of biomass from new anaerobic treatment plant which started up in June 1990. A two year optimization period ends in June 1993 after which further treatment limits will be established. **In compliance now:** **No**
McBean Mine **Dobie** One exceedance of phenol contrary to Guidelines. **Page # A-109**	The operation has been shutdown since 1987 and is in a care and maintenance mode. The company monitors the final discharge at the Little Larder Lake outflow. **In compliance now:** **Yes**
Placer Dome Inc. **Detour Lake Mine, Timmins** Four exceedances of ammonia contrary to Certificate of Approval. **Page # A-139**	Company did not discharge during periods of high ammonia in 1991. **In compliance now:** **Yes**
Rexwood Products Ltd. **New Liskeard** Exceedances of suspended solids (4) and BOD_5 (5) contrary to Objectives for the Control of Industrial discharges in Ontario. **Page # A-145**	Storm water diverted around woodwaste landfill to minimize leachate production. Culvert which underlies site has been plugged and waste has been capped to reduce leachate to zero. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northeastern Region

EXCEEDANCES	ACTIONS
Royal Oak Mines Inc. - Pamour Timmins Three exceedances of suspended solids and one exceedance of phosphorus contrary to Certificate of Approval.	Exceedances were marginally over limit and remedial action was not required.
Page # A-151	**In compliance now: Yes**
Spruce Falls Power and Paper Kapuskasing One exceedance of daily maximum limit for suspended solids contrary to Control Order.	A further Control Order is being developed for issuance in 1992. The company has proposed to install secondary treatment by 1994.
Page # A-156	**In compliance now: Yes**
St. Andrew Goldfields Ltd. Black River-Matheson One exceedance of pH and three exceedances each of suspended solids, and iron contrary to Certificate of Approval.	Tailings management system capacity was increased in 1991.
Page # A-157	**In compliance now: Yes**
Algoma Steel Wawa Exceedances of suspended solids (2) contrary to Guidelines.	Tailings dam works/repairs were completed in the summer of 1991. Closure of the facilities is under consideration by company.
Page # A-170	**In compliance now: Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northwestern Region

EXCEEDANCES	ACTIONS
Abitibi-Price Inc., Provincial Papers Division Thunder Bay There was a single period during which the Control Order limit for suspended solids was exceeded. **Page # A-4**	A minor process change temporarily affected the treatment system. Process restabalized within a two week period. **In Compliance Now: Yes**
Abitibi-Price Inc., Thunder Bay Division Thunder Bay There were regular exceedances of the Control Order limit for BOD_5, and periodic exceedances of the suspended solids limit. **Page # A-5**	Charges have been laid for the suspended solids violations, and BOD violations are under review. Operations suspended in April, 1991. **In Compliance Now: Yes**
Boise-Cascade Canada Ltd. Fort Frances There were continuous exceedances of their Control Order limit for suspended solids during the period May through August. **Page # A-15**	The company installed new aerators in their secondary treatment basin, which resulted in the resuspension of settled material. This continued until the system restabilized. **In Compliance Now: Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northwestern Region

EXCEEDANCES	ACTIONS
Canadian Pacific Forest Products Ltd. **Thunder Bay** There were occasional exceedances of their daily Control Order limit for suspended solids. Thirty day average values were in compliance. **Page # A-26**	The exceedances were the result of a few unrelated events; each was dealt with independently. **In Compliance Now:** **Yes**
Dickenson Mine Ltd. (A.W. White Mine) **Balmertown** There were ongoing exceedances of their Certificate of Approval limit for arsenic and there was a single exceedance of their suspended solids limit. **Page # A-40**	Discharge point is shared with Campbell Mine. Compliance with their Certificate of Approval requirement for arsenic is expected within one and one half years of start-up of Campbell pressure oxidation plant, in July, 1991. Natural turbulence in the tertiary clearwater pond causes the occasional suspended solids exceedance. **In Compliance Now:** **No**
Domtar Packaging Ltd. **Red Rock** There were regular exceedances of their Control Order limit for suspended solids. **Page # A-47**	The company has implemented an overall suspended solids reduction programme. **In Compliance Now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northwestern Region

EXCEEDANCES	ACTIONS
Mattabi Mines Ltd. **Ignace** There were occasional exceedances of the guideline limit for iron, suspended solids and pH. **Page # A-108**	Exceedances occur when high run-off flows are in excess of the hydraulic capacity of the treatment system. Mine operations were suspended in May, 1991. **In Compliance Now:** **Yes**
Minnova Inc. Winston Lake Project **Schreiber** There were periodic exceedances of their Certificate of Approval limit for ammonia, lead, phenols and zinc. **Page # A-110**	The height of the tailing dam has been increased to provide for longer retention time. **In Compliance Now:** **Yes**
Noranda Inc., Lyon Lake Division **Ignace** There were two exceedances of the guideline level for pH. **Page # A-116**	Mine operations were suspended in March, 1991. **In Compliance Now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northwestern Region

EXCEEDANCES	ACTIONS
Northern Wood Preservers **Thunder Bay** Periodic exceedances of the daily phenol Control Order limit were experienced. There was also a brief period of exceedances, of the daily pentachlorophenol limit. **Page # A-118**	The Control Order requires that "housekeeping measures" take place which would resolve the exceedances. However, these measures remain "on hold" pending the resolution of a related Control Order appeal in the courts. **In Compliance Now:** **Yes**
Ogilvie Mills Ltd. **Thunder Bay** There were periodic exceedances of their Control Order limit for BOD_5 and ongoing exceedances of their suspended solids guideline. **Page # A-122**	The secondary treatment facility is not designed to meet suspended solids objectives. Production cutbacks have reduced BOD_5 levels; the company has been in compliance since September of 1990. Negotiations continue to direct the effluent to Thunder Bay's water pollution control plant. A trial run has now been completed. **In Compliance Now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Northwestern Region

EXCEEDANCES	ACTIONS
Placer-Dome Mine (Campbell Red Lake Mine) **Balmertown** There were ongoing exceedances of their Certificate of Approval limit for arsenic and two exceedances of their suspended solids limit.	Discharge point is shared with Dickenson Mines Ltd. Campbell to start up a new pressure oxidation plant in July, 1991. Compliance with their Certificate of Approval requirement for arsenic is expected within one and one half years of start up. Natural turbulence in the tertiary clearwater pond causes the occasional suspended solids exceedance.
Page # A-138	**In Compliance Now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
AULT FOODS LIMITED **Winchester** Certificate of Approval loading limits for BOD_5; NH3-N; phosphorous and RSP were exceeded. **Page # A-11**	At the request of the MOE the company has submitted an Environmental Study Report and System Upgrading Proposal. This report will form the basis of an order in 1992. **In compliance now:** **No**
BTL SPECIALTY RESINS **Belleville** MOE guidelines for phenol exceeded twice. **Page # A-18**	BTL ceased operation in March 1990. Planning for site decommissioning is under way. **In compliance now:** **Yes**
CASCO COMPANY **Cardinal** Exceeded monthly phosphorus limit at two of three discharge points and the annual BOD_5 limit at one discharge point. **Page # A-28**	The company made modifications to operating procedures which resulted in compliance being achieved. **In compliance now:** **Yes**
CORNWALL CHEMICALS LIMITED **Cornwall** Non-compliance with RSP and BOD_5 guidelines. **Page # A-31**	The company submitted a spill prevention strategy in 1991. A Provincial Officers' report will be prepared in 1992 which will identify future abatement actions. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
COURTAULDS FIBRES CANADA **Cornwall** Exceeded guidelines for its discharges of acidity, zinc and phosphorus. **Page # A-32**	This company has been a source of frequent spills. An Order requiring the Company to improve its spill control will be served in early 1992. **In compliance now:** **No**
DOMTAR INC. CONTAINERBOARD DIVISION **Trenton** Exceeded BOD_5 limit and phosphorous guidelines in several months. **Page # A-44**	The company initiated the design of a wastewater treatment system based on an evaporation process to reduce effluent discharges. An application for a Certificate of Approval is pending. **In compliance now:** **No**
DOMTAR FINE PAPERS **Cornwall** Exceeded Control Order BOD_5 requirement once. **Page # A-45**	Company has instituted internal control procedures and management practices to avoid exceedances of Control Order Limits. **In compliance now:** **Yes**
DOMTAR WOOD PRESERVING **Trenton** Exceeded North Outfall C of A limits for phenol and pentachlorophenol and MOE guideline for phenols and RSP at Far North Outfall in several months. **Page # A-48**	Operational changes in 1991 to the WWTP has greatly improved compliance at the north outfall. Action Plan submitted by company in October 1991 to address effluent quality non-compliance. Company to submit a detailed remedial workplan in early 1992. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
E.B. EDDY FOREST PRODUCTS LTD. **Ottawa** Exceeded guideline for BOD_5 in several months **Page # A-56**	Company conducted a pilot treatment system study in 1991. A draft Control Order has been prepared and is under technical review. **In compliance now:** **No**
GLEN AYR KITTEN MILLS **Lanark** Exceeded guideline for BOD_5 and RSP in several months. **Page # A-80**	Process changes made by the company in 1990 failed to resolve the problem. A Control Order will be issued in 1992 to address non-compliance with Provincial Guidelines. **In compliance now:** **No**
HALEY **Haley** Effluent criteria on Certificate of Approval were exceeded for several parameters in 1990. **Page # A-81**	Haley prepared a conceptual design for a new wastewater treatment system in 1991. Based on the design, Haley submitted an application for a Certificate of Approval for this wastewater treatment system in 1992. The application is under review by Ministry Staff. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
HIGHLINE PRODUCE LTD. **- WELLINGTON MUSHROOM FARM** **(FORMERLY CAMPBELL'S MUSHROOM FARM)** **Hallowell Twp.** Exceeded Certificate of Approval limit for phosphorus in 1 month. **Page # A-83**	Plant personnel initiated the addition of alum during the last quarter of 1989. System was optimized in 1990. **In Compliance Now:** **Yes**
ICI CANADA INC., CONSOLIDATED PACKAGING OPERATION (formerly Stanchem) **Cornwall** Non-compliance with BOD_5, RSP and total phosphorus guidelines for several months. **Page # A-84**	ICI developed and submitted a spill prevention strategy in 1991. Document is under review. A Provincial Officers' report will be prepared in 1992 to identify future abatement actions. **In compliance now:** **No**
ICI FOREST PRODUCTS **Cornwall** Non-compliance with RSP guidelines for all 12 months. **Page # A-86**	The company is investigating suspended solids reduction, an application for an amendment to the Certificate of Approval is anticipated. ICI submitted a spill prevention strategy in 1991. Document is under review. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
KRAFT GENERAL FOODS CANADA INC. **Ingleside** Ministry guidelines for BOD_5, RSP and total phosphorus exceeded in several months. **Page # A-101**	The company made improvements to the new anaerobic digestion system during 1990 and has been in compliance with BOD_5 and RSP guidelines since February 1991. The company has entered into an agreement with the Township of Osnabruck for a combined treatment facility. The treatment system will be designed to meet Ministry guidelines for BOD_5, RSP and phosphorus. **In compliance now:** **No**
NESTLE ENTERPRISES LIMITED **Chesterville** Exceeded Certificate of Approval limit for BOD_5 and RSP during annual discharge. **Page # A-113**	The company reviewed wastewater treatment operations and amendments to the Certificate of Approval will be applied for. **In compliance now:** **No**
NITROCHEM INC. **Maitland** Exceeded MOE Objectives for phosphorous and pH in several months. **Page # A-114**	A Control Order for the Spills Prevention Strategy will be issued in 1992. A comprehensive site inspection in 1991 and the MISA BAT options report will provide the basis for the identification of final effluent control technology. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southeastern Region

EXCEEDANCES	ACTIONS
SONOCO Ltd. TRENT VALLEY MILL, A DIVISION OF PAPERBOARD INDUSTRIES CORPORATION **Trenton** Exceeded Certificate of Approval requirement for RSP in all 12 months. **Page # A-155**	The preliminary design specifications for a secondary wastewater treatment plant were completed by the company in 1990. A pilot wastewater treatment plant project was completed during 1991. Evaluation of the treatment plant design and pilot project is on-going in 1992. **In compliance now:** **No**
STRATHCONA PAPER COMPANY, A DIVISION OF ROMAN CORPORATION LIMITED **Camden East** Exceeded Certificate of Approval BOD_5 loading limit in several months. **Page # A-166**	Additional aeration was installed in the treatment system in June 1990. The company is now in compliance. **In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southwestern Region

EXCEEDANCES	ACTIONS
Campbell Soup Co. Ltd. **St. Mary's** Exceeded RSP guideline on 2 occasions for the year. **Page A-23**	In June 1989 a consultant was retained to review existing plant operational procedures and to make any necessary operational/process and equipment changes to upgrade the effluent discharge to compliance standards. Several operational changes in 1989 and 1990 have resulted in virtual compliance with the criteria. Ongoing operational improvements will result in further effluent loading reductions. It is expected that full compliance will be achieved in 1992. **In compliance now:** **No**
Champlain Industries Ltd. **Tara** There was one guideline exceedance for RSP **Page A-30**	Operating staff have adjusted process controls to meet the guideline loading requirements on an ongoing basis. **In compliance now:** **Yes**
General Chemical Canada Ltd. **Amherstberg** Exceedance of the RSP guideline occurred on 12 occasions at control point 0100. **Page A-78**	Sampling and analytical difficulties in the suspended solids analyses are being experienced. New protocols are being reviewed. These difficulties relate to pH changes between the time of sampling and the time of analysis. **In compliance now:** **No**

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Review of Action Taken to Address 1990 Non-Compliance
Southwestern Region

EXCEEDANCES	ACTIONS
Ford Motor Company Ltd. **Windsor** Exceedance of phenols guideline 12 times and suspended solids guidelines 5 times. **Page A-75**	Phenol reduction program has resulted in a significant decrease in the phenol loading discharged. This program is continuing. Pollution abatement facilities for removing suspended solids is now in place and operating. **In compliance now:** **No**
Novacor Chemicals Ltd. **Mooretown** The 7 items of non-compliance were TSS exceedances. **Page A-120**	Novacor installed a GEO-WEB lining in the process pond in July, 1990 to reduce T.S.S. Following installation of the lining Novacor have experienced 2 minor exceedances of the 15 ppm criteria in November 1990 (15.8 ppm) and March 1991 (15.8 ppm). **In compliance now:** **Yes**
Omstead Foods Ltd. **Wheatley** Exceedance of guidelines for BOD_5 '4 times NH_3-N Total 2 times, Phosphorous 3 times, and suspended solids 7 times. **Page A-123**	Poor effluent quality occurs primarily during the winter months, but overall quality is improving. On May 9, 1991 a Certificate of Approval was issued for upgrading the company's wastewater treatment plant. Construction should be completed by the Spring 1993. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southwestern Region

EXCEEDANCES	ACTIONS
Sifto Canada Inc. **Goderich** Exceeded RSP (suspended solids) guidelines on 4 occasions over the year.	The exceedances were the result of the discharge of the contents of a sodium carbonate precipitation pond which was part of the boiler feed water treatment facilities. The discharges occurred 4 times in 1990 and lasted one day each time. This treatment facility was shut down in August 1991 and compliance with the effluent guideline for RSP loading is now expected.
Page A-154	**In compliance now:** **Yes**
Suncor Inc., Sunoco Group **Sarnia** MOE guideline for ammonia exceeded once.	The exceedance of the ammonia guideline in October 1990 was caused by mechanical problems with the sour water/ammonia stripper, during the start-up of Plant #1. To correct the problem the company has modified the sour water/ ammonia stripping system (C. of A. 4-074-85-866). The equipment modifications were operational in March 1991.
Page A-167	**In compliance now:** **Yes**
The Canadian Salt Company **Windsor** Exceedance of suspended solids guideline 3 times.	The two discharge points were combined into one in 1991. The company is planning to redirect its stormwater runoff, which will decrease the suspended solids loadings discharged.
Page A-171	**In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
Southwestern Region

EXCEEDANCES	ACTIONS
Valeo Engine Cooling Ltd. **Stratford** Exceeded effluent guidelines for zinc 6 times and for suspended solids 3 times.	Ministry staff met with Company officials to determine what measures must be taken to reduce effluent parameter concentration levels, which would meet current effluent discharge criteria. In March 1990 the company submitted an action plan which included an in-house investigative at-source reduction program. Operational modifications were implemented and continued through 1991. Full yearly compliance is anticipated in 1993.
Page A-172	**In compliance now:** **No**
Wickes Manufacturing Ltd. **Windsor** Exceedance of suspended solids once.	The plant ceased operations and closed in September 1990. Treated effluent is still being discharged to the receiving waterbody.
Page A-175	**In compliance now:** **Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
West Central Region

EXCEEDANCES	ACTIONS
American Standard, Div. of Wabco Standard Inc. Cambridge Exceeded Certificate of Approval for suspended solids two times. **Page A-9**	A Certificate of Approval was issued Dec. 1990 for modification to the wastewater treatment plant. Installation of new equipment was completed end of July, 1991. **In compliance now: No**
B.F. Goodrich Niagara Falls Company exceeded daily requirements of its Certificate of Approval for pH (12), Vinyl Chloride Monomer (3), Ammonia + Ammonium (1) and flow (15). Exceeded monthly requirements for BOD (1) and suspended solids (9). **Page A-13**	Expansion of the polyvinyl chloride plant commenced in 1989 and will be completed in June 1992. Exceedances occur during the commissioning at each phase of the plant expansion. Construction of an upgraded biological wastewater treatment system was completed in 1990. Commissioning will be ongoing until the completion of the resin plant expansion. **In compliance now: No**
Canadian-Oxy Chemicals Ltd., Fort Erie Exceeded guideline for phenol three months (Jan, Feb, and March). **Page A-24**	Source of phenol was identified as contaminated groundwater leaching into the storm sewer system. Remediation started in 1990 and is expected to be completed in 1992 **In compliance now: No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
West Central Region

EXCEEDANCES	ACTIONS
Cyanamid Canada Inc., (Welland Plant) Niagara Falls Phosphorus exceeded requirement for two months (Jan. and July), and nine months for ammonia. Company exceeded daily requirements of its Certificate of Approval for pH (41). **Page A-34**	The Exceedances of Ammonia and pH were due to contaminated groundwater infiltrating the sewer. Studies are underway to define the extent of the contamination and propose remediation options. **In compliance now: No**
Dofasco Inc. Hamilton Suspended solids, cyanide, and phenolics guidelines exceeded for 8, 1 and 8 months respectively. **Page A-41**	Three of the eight suspended solids exceedences, five of the eight phenolic exceedences, and the cyanide exceedence were the result of a change in reporting format from IMIS NET data to MISA GROSS data. The remaining exceedances were caused by unrelated incidents including run off from a snow dump and upsets in the treatment system. Modifications were made to the wastewater treatment system in 1991 achieving compliance. **In compliance now: Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
West Central Region

EXCEEDANCES	ACTIONS
Domtar Fine Papers, St. Catharines BOD_5 exceeded Pulp and Paper Committee Guidelines for 12 months. **Page A-46**	The discharge of high strength BOD wastewater will be diverted to the municipal sanitary sewer in 1992. Compliance is expected at that time. **In compliance now:** **No**
General Motors, St. Catharines Suspended Solids and Phenols exceeded guidelines, for one and eight months respectively. **Page A-79**	Secondary treatment consisting of Rotating Biological Contactors was installed in 1988. Compliance has been demonstrated when the equipment has been properly operated. However, some mechanical equipment failures have occurred. The discharge was in compliance in 1990 until a further equipment failure occurred. The equipment was replaced and commissioning recommenced in January 1991. **In compliance now:** **No**
J. M. Schneider Poultry Inc. Ayr Exceeded Certificate of Approval limit for BOD twice, NH_3-N once and suspended solids twice. **Page A-97**	New clarifier was installed late 1990. However, exceedances persisted. Company's abatement program in 1991 included changing the chemicals added to the treatment unit, reducing waste water flow and converting the old clarifier into a second aeration tank. **In compliance now:** **No**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
West Central Region

EXCEEDANCES	ACTIONS
Kimberly Clark, Thorold BOD_5 marginally exceed Pulp and Paper Guidelines for three months. **Page A-99**	Treatment plant and process changes were completed in November 1991. Compliance is anticipated when commissioning of the system is complete. **In compliance now: No**
Noranda Recycled Paper Inc., Thorold Exceeded Certificate of Approval Limit for BOD_5 nine times **Page A-115**	The non-compliance is attributed to equipment failures and process upsets resulting in by-passes of the waste water treatment system. Upgrades to the treatment plant were made in 1990. However exceedances persisted. The company is addressing the exceedances through a spill prevention strategy. **In compliance now: No**
Orenco (Ontario Rendering) Dundas Suspended solids above guideline on 3 occasions due to runoff/erosion from fields. **Page A-135**	Sampling point changed in mid-1990 to ensure results reflect plant effluent. **In compliance now: Yes**

Appendix B
Review of Action Taken to Address 1990 Non-Compliance
West Central Region

EXCEEDANCES	ACTIONS
Rothsay Rendering Div. of Maple Leaf Mills Ltd. Rothsay Two minor exceedances of pH and one minor exceedance of H_2S at detection limit, Certificate of Approval requirement. **Page A-150**	Discharge is on a batch basis from treated lagoon and quality is consistently within criteria except for minor isolated incidents. Minor exceedances occurred during the first discharge period (Jan 1990). In compliance during the second discharge period (Nov - Dec 1990) **In compliance now: No**
Stelco Inc. Nanticoke Suspended solids requirement exceeded for one month. **Page A-162**	Elevated suspended solids in October believed to have been caused by soil erosion from heavy rainfalls. Most of mill was shut down as a result of a strike when elevated levels occurred. **In compliance now: Yes**

Appendix C
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
Central Region			
Kimberly Clark Huntsville	03-303-92-0294	C of A Violation April 1990	Exceedances within analytical error
Petro-Canada Oakville Plant	03-305-92-0301 03-305-92-0299 03-305-92-0348	C of A Violation January 1990	Abatement action taken
	03-305-92-0340 03-305-92-0351	C of A Violation February 1990	Abatement action taken
	03-305-92-0344 03-305-92-0393	C of A Violation March 1990	Abatement action taken
	03-305-92-0350 03-305-92-0396	C of A Violation April 1990	Abatement action taken
	03-305-92-0349 03-305-92-0394	C of A Violation May 1990	Abatement action taken
	03-305-92-0300	C of A Violation June 1990	Abatement action taken
	03-305-92-0346 03-305-92-0395	C of A Violation July 1990	Abatement action taken
	03-305-92-0353 03-305-92-0400	C of A Violation August 1990	Abatement action taken
	03-305-92-0345 03-305-92-0399	C of A Violation September 1990	Abatement action taken
	03-305-92-0352 03-305-92-0397	C of A Violation October 1990	Abatement action taken
	03-305-92-0354 03-305-92-0392	C of A Violation November 1990	Abatement action taken

Appendix C ...continued
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
Central Region ...continued			
Petro-Canada Oakville Plant	03-305-92-0347 03-305-92-0398	C of A Violation December 1990	Abatement action taken
Northeastern Region			
Algoma Steel Corp.	05-503-90-0689	C.O. Violation July 1990	Abatement action taken
Canamax Ltd. - Bell Creek Mine	05-502-90-0220	C of A Violation April 1989	Abatement action taken
(Reported as Falconbridge Gold Corp.)	05-502-90-0778	C of A Violation September 1990	Abatement action taken
Deak Resources (Golden Shield Res.)	05-502-90-0552	C of A Violation August 1990	Abatement action taken
Detour Lake Mine (Reported as Placer Dome Inc.)	05-502-90-0433	C of A Violation July 1990	Abatement action taken
Giant Yellowknife Mines (Reported as Royal Oak Mines Inc. - Parmour)	05-502-90-0753	C of A Violation October 1990	Exceedances within analytical error
MacMillan Bloedel Ltd.	05-504-90-0682	Violation C.O. September 1990	Abatement action taken
Malette Kraft Pulp and Power	05-502-90-0043	Violation C.O. December 1989	Abatement action taken
	05-502-90-0121	Violation C.O. January 1990	Charges laid Currently before courts

Appendix C ...continued
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
Northeastern Region ...continued			
Spruce Falls Power and Paper Ltd. (Reported as Spruce Falls Inc.)	05-502-90-044	Violation C.O. January 1990	Charges laid Currently before courts
	05-502-90-0556	Violation C.O. August 1990	Abatement action taken
Northwestern Region			
Abitibi-Price Provincial Papers Div.	06-601-90-0067	C.O. Violation TSS Exceedance	Investigation concluded Abatement action taken
Abitibi-Price Thunder Bay Div.	06-601-89-0059	C.O. Violation TSS Exceedance	Investigation concluded Abatement action taken
	06-601-89-0121	C.O. Violation	Company convicted $18,000 total penalty
	06-601-89-0126	C.O. Violation BOD Exceedance	Abatement action taken
	06-601-89-0239	C.O. Violation BOD Exceedance	Abatement action taken
Boise Cascade Fort Frances	06-602-90-0007	C.O. Violation BOD Exceedance	Investigation concluded Abatement action taken
	06-602-90-0078	C.O. Violation TSS Exceedance	Investigation concluded Abatement action taken
	06-602-90-0206	C.O. Violation TSS Exceedances July & Aug 1990	Abatement action taken
Domtar Packaging Red Rock	06-601-90-0122	C.O. Violation	Investigation concluded Abatement action taken

Appendix C ...continued
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
Northwestern Region ...continued			
Domtar Packaging Red Rock	06-601-90-276	C.O. Violation TSS Exceedance	Abatement action taken
Minnova Inc. Winston Lake	06-601-90-0050	C.O. Violation Zinc Exceedance	Investigation concluded Abatement action taken
Oglivie Mills Ltd. Thunder Bay	06-601-90-0033	C of A Violation	Investigation concluded Abatement action taken
Placer-Dome Inc. Campbell Red Lake Mine	06-602-90-0122	C of A Violation	Abatement action taken
Dickensen Mines Ltd. (final discharge point shared with Placer-Dome Inc. above) Arthur W. White Mine			
Southeastern Region			
Casco	04-401-91-0518	C of A Violation August 1991	Investigation concluded Abatement action taken
Nestle Enterprises Ltd.	04-403-91-0252	C of A Violation	Investigation concluded Abatement action recommended
Domtar Inc. Cornwall	04-403-90-0295	C of A Violation	Company convicted of charges Nov. 22, 1991 fined $40,000
Domtar Wood Preserving Trenton	04-411-90-0844	C of A Violation June - Aug. 1990	Company charged Currently before the courts
	04-411-91-0399	C of A Violation Mar. '90 - Nov. '91	Company charged Currently before the courts

Appendix C ...continued
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
Southeastern Region ...continued			
Domtar Wood Preserving Trenton	04-411-91-0073	C of A Violation November 1990	Company charged Currently before the courts
	04-411-91-0675	C.O. Violation Aug. to Sept. 1990	Company charged Currently before the courts
Kraft Foods	04-403-91-0121	C of A Violation December 1990	Investigation concluded Abatement action taken
Southwestern Region			
General Chemical	01-102-90-0234	C of A Violation	Investigation concluded No charges. Abatement action recommended. (i.e. update of C of A)
Ethyl Canada	01-103-90-0409	C of A Violation	Abatement action taken
West Central Region			
American Standard	02-202-90-0262	C of A Violation January 1990	Abatement action taken
	02-202-90-0263	C of A Violation February 1990	Abatement action taken
	02-202-90-0266	C of A Violation March 1990	Abatement action taken Company upgraded their wastewater treatment system in 1991

Appendix C ...continued
1990 OCCURRENCE REPORT SUMMARY

Company	Occurrence No.	Description	Status
West Central Region ...continued			
American Standard	02-202-90-0276	C of A Violation April 1990	Abatement action taken Company upgraded their wastewater treatment system in 1991
J.M. Schneider Inc.	02-202-90-0258	C of A Violation January 1990	Abatement action taken Company installed additional clarifier in 1990
	02-202-90-0259	C of A Violation February 1990	Abatement action taken Company installed additional clarifier in 1990
	02-202-90-0260	C of A Violation March 1990	Abatement action taken Company installed additional clarifier in 1990
	02-202-90-0261	C of A Violation April 1990	Abatement action taken Company installed additional clarifier in 1990
	02-202-90-0373	C of A Violation May 1990	Abatement action taken Company installed additional clarifier in 1990
	02-202-90-0469	C of A Violation June 1990	Abatement action taken Company installed additional clarifier in 1990

Appendix D

ONTARIO MINISTRY OF THE ENVIRONMENT

Addresses and Telephone Numbers

Regional Offices

The Director, Central Region
7 Overlea Blvd., 4th Floor,
Toronto, Ontario
M4H 1A8
(416) 424-3000

The Director, Northeastern Region
199 Larch Street,
Sudbury, Ontario
P5E 5P9
(705) 675-4501

The Director, Northwestern Region
P.O. Box 5000, 435 James Street S.,
Thunder Bay, Ontario
P7C 5G6
(807) 475-1205

The Director, Southeastern Region
P.O. Box 820, 133 Dalton Street,
Kingston, Ontario
K7L 4X6
(613) 549-4000

The Director, Southwestern Region
985 Adelaide Street South,
London, Ontario
N6E 1V3
(519) 661-2200

The Director, West Central Region
119 King Street West, 12th Floor,
Hamilton, Ontario
L8N 3Z9
(416) 521-7640

District Offices

Central Region

Halton-Peel District Office
1226 White Oaks Blvd.,
Oakville, Ontario
L6H 2B9
(416) 844-5747

Peterborough District Office
139 George Street North,
Peterborough, Ontario
K9J 3G6
(705) 743-2972

Barrie District Office
12 Fairview Road,
Barrie, Ontario
L4N 4P3
(705) 726-1730

Muskoka-Haliburton District Office
483 Bethune Drive,
Gravenhurst, Ontario
P0C 1G0
(705) 687-6647

Appendix D ...continued

ONTARIO MINISTRY OF THE ENVIRONMENT

Addresses and Telephone Numbers

District Offices ...continued

Central Region ...continued

Toronto East District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3013

Toronto West District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3007

York-Durham District Office
7 Overlea Blvd.,
Toronto, Ontario
M4H 1A8
(416) 467-3009

Northeastern Region

North Bay District Office
Northgate Plaza,
1500 Fisher Street, Suite 109,
North Bay, Ontario
PlB 2H3
(705) 476-1001

Sault Ste. Marie District Office
445 Albert Street East,
Sault Ste. Marie, Ontario
P6A 2J9
(705) 949-4640

Sudbury District Office
199 Larch Street, 11th Floor,
Sudbury, Ontario
P5E 5P9
(705) 675-4501

Timmins District Office
83 Algonquin Blvd. West,
Timmins, Ontario
P4N 2R4
(705) 268-3222

Parry Sound Sub-Office
74 Church Street,
Parry Sound, Ontario
P2A 1Z1
(705) 746-2139

Appendix D ...continued

ONTARIO MINISTRY OF THE ENVIRONMENT

Addresses and Telephone Numbers

District Offices ...continued

Northwestern Region

Thunder Bay District Office
P.O. Box 5000, 435 James Street S.,
Thunder Bay, Ontario
P7C 5G6
(807) 475-1205

Kenora District Office
808 Robertson Street,
Kenora, Ontario
P9N 1X9
(807) 468-2718

Southeastern Region

Cornwall District Office
285 Amelia Street,
Cornwall, Ontario
K8H 3P3
(613) 933-7402

Kingston District Office
P.O. Box 820, 133 Dalton Avenue,
Kingston, Ontario
K7L 4X6
(613) 549-4000

Ottawa District Office
2378 Holly Lane, 2nd Floor,
Ottawa, Ontario
K1V 7P1
(613) 521-3450

Belleville Sub-Office
Belleville Mall, 470 Dundas St. E.,
Belleville, Ontario
K8N 1G1
(613) 962-9208

Pembroke Sub-Office
1000 Mackay Street,
Pembroke, Ontario
K8B 1A3
(613) 732-3643

Appendix D ...continued

ONTARIO MINISTRY OF THE ENVIRONMENT

Addresses and Telephone Numbers

District Offices ...continued

Southwestern Region

Sarnia District Office
265 North Front Street, Suite 109,
Sarnia, Ontario
N7T 7X1
(519) 336-4030

Windsor District Office
250 Windsor Avenue, 6th Floor,
Windsor, Ontario
N9A 6V9
(519) 254-2546

Chatham Sub-Office
c/o Ministry of Agriculture and Food
P.O. Box 726, 435 Grand Ave. W.,
Chatham, Ontario
N7M 5L1
(519) 354-9434

Owen Sound District Office
1180 - 20th Street,
Owen Sound, Ontario
N4K 6H6
(519) 371-2901

London District Office
985 Adelaide Street South,
London, Ontario
N6E 1V3
(519) 661-2200

Clinton Sub-Office
c/o Ministry of Agriculture and Food
P.O. Box 688,
Clinton, Ontario
N0M 1L0

West Central Region

Cambridge District Office
P.O. Box 219, 400 Clyde Road,
Cambridge, Ontario
N1R 5T8
(416) 653-1511

Hamilton District Office
P.O. Box 2112,
119 King Street W., 9th Floor,
Hamilton, Ontario
L8N 3Z9
(416) 521-7650

Welland District Office
637 - 641 Niagara North,
Welland, Ontario
L3C 1L9
(416) 384-9845